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Alcohol and Other Drug Screening of Hospitalized Trauma Patients
Treatment Improvement Protocol (TIP) Series: 16

Peter O. Rostenberg, M.D.
Consensus Panel Chair
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Substance Abuse and Mental Health Services Administration
Center for Substance Abuse Treatment
Rockwall II, 5600 Fishers Lane
Rockville, MD 20857
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[Front Matter]

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The opinions expressed herein are the views of the consensus panel members and do not reflect the official position of CSAT or any other part of the U.S. Department of Health and Human Services (DHHS). No official support or endorsement of CSAT or DHHS for these opinions or for particular instruments or software that may be described in this document is intended or should be inferred. The guidelines proffered in this document should not be considered as substitutes for individualized patient care and treatment decisions.

What Is a TIP?

CSAT Treatment Improvement Protocols (TIPs) are prepared by the Quality Assurance and Evaluation Branch to facilitate the transfer of state-of-the-art protocols and guidelines for the treatment of alcohol and other drug (AOD) abuse from acknowledged clinical, research, and administrative experts to the Nation's AOD abuse treatment resources.

The dissemination of a TIP is the last step in a process that begins with the recommendation of an AOD abuse problem area for consideration by a panel of experts. These include clinicians, researchers, and program managers, as well as professionals in such related fields as social services or criminal justice.

Once a topic has been selected, CSAT creates a Federal resource panel, with members from pertinent Federal agencies and national organizations, to review the state of the art in treatment and program management in the area selected. Recommendations from this Federal panel are then transmitted to the members of a second group, which consists of non-Federal experts who are intimately familiar with the topic. This group, known as a non-Federal consensus panel, meets in Washington for 5 days, makes recommendations, defines protocols, and arrives at agreement on protocols. Its members represent AOD abuse treatment programs, hospitals, community health centers, counseling programs, criminal justice and child welfare agencies, and private practitioners. A Chair for the panel is charged with responsibility of ensuring that the resulting protocol reflects true group consensus.

The next step is a review of the proposed guidelines and protocol by a third group whose members serve as expert field reviewers. Once their recommendations and responses have been reviewed, the Chair approves the document for publication. The result is a TIP reflecting the actual state of the art of AOD abuse treatment in public and private programs recognized for their provision of high quality and innovative AOD abuse treatment.

This TIP *Alcohol and Other Drug Screening of Hospitalized Trauma Patients* examines the extensive role that alcohol and other drug abuse plays in traumatic injury. The costs of injury to both individuals and society are high. In financial terms, the annual direct and indirect costs of

providing care for injured persons are higher than the costs of care for persons with cancer or heart disease. Persons who sustain one injury are at greatly increased risk of reinjuring themselves and others. Untreated substance use disorders are thought to be the cause of a large portion of reinjury. For these and other reasons, the consensus panel recommends universal alcohol and drug screening of injured patients ages 14 and older upon hospital admission.

The TIP provides guidelines for addressing positive results of screens. The purpose of screening is twofold: to improve the medical management of these patients during hospitalization and injury rehabilitation and to help identify a subgroup of patients with untreated AOD problems who can be referred to treatment, if appropriate. The TIP is targeted both to professionals in the treatment field, who may not be familiar with traumatic injuries, and to medical professionals, who may be considering implementing screening programs in their facilities. It is hoped that the TIP will help bring closer together two groups of care providers to improve care and more effectively address injury prevention.

This TIP represents another step by CSAT toward its goal of bringing national leadership to bear in the effort to improve AOD abuse treatment.

Other TIPs may be ordered by contacting The National Clearinghouse for Alcohol and Drug Information (NCADI), (800) 729-6686 or (301) 468-2600; TDD (for hearing impaired), (800) 487-4889.

Consensus Panel

Chair:

Peter O. Rostenberg, M.D.

Co-Chair, Trauma Committee

American Society of Addiction Medicine

Internal Medicine, Addiction Medicine

New Fairfield, Connecticut

Allan Graham, M.D., F.A.C.P.

Medical Director

Founders Hall

St. Johnsbury, Vermont

John Loiselle, M.D.

Assistant Professor of Pediatric

Emergency Medicine

Medical College of Pennsylvania

St. Christopher's Hospital for Children

Philadelphia, Pennsylvania

Marilyn Sawyer Sommers, R.N., Ph.D.

Assistant Professor, College of Nursing and Health

University of Cincinnati

Cincinnati, Ohio

Workgroup Members:

John Ambre, M.D., Ph.D.

Director, Department of Toxicology and Drug Abuse

American Medical Association

Chicago, Illinois

Margaret Kent Brooks, J.D.

Consultant

Montclair, New Jersey

Andrew DiBartolomeo, M.D., M.B.A., F.A.C.E.P.

Medical Director

Apple Creek Developmental Center

Apple Creek, Ohio

Roman Frankel, N.C.A.C. II, C.E.A.P.

President/Executive Director

New Start Inc.

West Bloomfield, Michigan

Elizabeth Garcia, C.M.S.W.

Director of Managed Care

Pinal Gila Behavioral Health Association

Apache Junction, Arizona

Larry M. Gentilello, M.D.

Assistant Professor, Department of Surgery

Harborview Medical Center

Seattle, Washington

James N. Heckler, M.S., M.B.A.

Coordinator, Healthcare Intervention Services Demonstration

New York State Office of Alcoholism and Substance Abuse Services

Albany, New York

Christine L. Kasser, M.D.

Medical Director, Baptist Recovery Center

Baptist Memorial Hospital

Memphis, Tennessee

Thomas W. Kozlowski, A.C.S.W.

Associate Director, Office of Mental Health Accreditation Services

Joint Commission on Accreditation of Healthcare Organizations

Oakbrook Terrace, Illinois

Rita J. Seeds, L.M.S.W.

Program Manager, Long-Term Care and Restorative Services Division

New Mexico Department of Health

Santa Fe, New Mexico

Dena J. Seiden, Ph.D.

Medical Ethicist

Medical Ethics Consulting Services

New York, New York

Francis R. Sparadeo, Ph.D.

Director of Substance Abuse Services

Department of Psychiatry

Rhode Island Hospital

Providence, Rhode Island

Herbert L. Thornhill, M.D.

Director, Department of Rehabilitation Medicine

Harlem Hospital Center

New York, New York

Foreword

The Treatment Improvement Protocol Series (TIPs) fulfills CSAT's mission to improve alcohol and other drug (AOD) abuse and dependency treatment by providing best practices guidance to clinicians, program administrators, and payers. This guidance, in the form of a protocol, results from a careful consideration of all relevant clinical and health services research findings, demonstration experience, and implementation requirements. A panel of non-Federal clinical researchers, clinicians, program administrators, and patient advocates employs a consensus process to produce the product. This panel's work is reviewed and critiqued by field reviewers as it evolves.

The talent, dedication, and hard work that TIPs panelists and reviewers bring to this highly participatory process have bridged the gap between the promise of research and the needs of practicing clinicians and administrators. We are grateful to all who have joined with us to contribute to advance our substance abuse treatment field.

Nelba Chavez, Ph.D.

Administrator

Substance Abuse and Mental Health Services Administration

David J. Mactas

Director

A Note to Readers

This Treatment Improvement Protocol (TIP) has been written for a wide-ranging audience, including State alcohol and other drug (AOD) authorities; administrators and staff of AOD abuse treatment programs; emergency department and hospital personnel, such as physicians, nurses, and social workers; public health authorities; and healthcare policymakers. Some readers may find that certain chapters contain material with which they are highly familiar. The chapters are described below so that readers can select those of primary interest.

Chapter 1 Introduction describes the significant role that substance use, abuse, and dependence play in traumatic injury and reinjury and presents statistics and other evidence of the broad scope of the problem. While this chapter will be informative to all audiences, it is particularly targeted to policymakers to bring attention to the social and financial costs of this problem.

Chapter 2 Trauma Patients describes hospitalized trauma patients, including the types of injuries they sustain and their treatment and rehabilitation. Physicians, nurses, and other hospital personnel will be highly familiar with the material presented. The chapter is primarily targeted to AOD abuse treatment providers.

Chapter 3 Effects of Alcohol and Other Drugs on Trauma Patients describes the effects of acute and chronic AOD use on the management of trauma patients, both in the emergency phase of treatment and later in the subacute and rehabilitation phases. Insofar as the chapter provides strong evidence for the value of ascertaining patients' AOD status via screening and assessment and making AOD interventions when appropriate, the chapter will be informative to all audiences.

Chapter 4 Screening and Assessment describes the processes of screening and assessment for AOD use, abuse, and dependence. Several widely used screening questionnaires are described. The chapter is targeted primarily to hospital personnel and administrators who may be considering establishing a screening program. Most AOD treatment providers will be very familiar with these processes. However, the chapter also reviews research and current thinking on the effectiveness of brief AOD interventions and presents guidelines for making such interventions in the hospital setting. This information will be of interest to all care providers.

Chapter 5 Cost-Benefit Issues Affecting Implementation of Screening discusses the benefits of screening of hospitalized trauma patients and the financial costs associated with implementing a screening program. The chapter will be of most interest to hospital administrators and policymakers.

Chapter 6 Legal and Ethical Concerns explores ethical issues concerning protection of patients' confidentiality and the use of screening. A case example illustrates these concerns. The chapter is targeted primarily to care providers in the hospital setting.

Chapter 7 Recordkeeping and Quality Improvement addresses the issue of handling records to

protect patients' confidentiality. The chapter explores ways in which outcomes can be defined and measured in order to ensure the continued quality improvement of the screening and assessment program. The chapter is targeted primarily to care providers in the hospital setting.

Alcohol and Other Drug Screening of Hospitalized Trauma Patients
Treatment Improvement Protocol (TIP) Series: 16

Chapter 1 -- Introduction

This Treatment Improvement Protocol (TIP) takes a detailed look at the hospitalized, injured patient and discusses screening urine and blood for alcohol and other drugs (AODs) when the patient arrives at the hospital or trauma center. Such screening is an essential first step in understanding a patient's medical needs and determining if there is an underlying substance use disorder. This TIP describes some of the ways in which use of alcohol and other drugs can complicate immediate assessment and longer term rehabilitation of patients with traumatic injuries. Several screening instruments are examined, and the screening and assessment process is described, as well as a number of brief interventions that could be used in the hospital setting. Ethical and legal issues are also discussed in detail to dispel myths, to acknowledge realities, and to give healthcare planners a menu of suggested strategies to ensure compliance with Federal confidentiality regulations.

AOD screening of trauma patients is an essential first step in understanding patients' medical needs and determining if there is an underlying substance use disorder.

This TIP does not address those patients who visit emergency departments and are discharged without being hospitalized. Although it is very likely that substance abuse interventions with many of these patients would prevent them from sustaining more serious injuries in the future, most healthcare institutions do not have the resources to implement routine screening of this large patient group. This TIP focuses on injured patients who require hospitalization because these patients are sicker and because hospitalization allows clinicians time to perform screens and appropriately address the results.

The Goals of This TIP

Implementing Screening Programs

The overall goal of this TIP is to provide State AOD agencies, hospitals, clinicians, treatment facilities, and healthcare policymakers with practical guidelines for starting screening and assessment programs for hospitalized injured patients. Such programs can be initiated at the State level or by hospitals that treat severe injuries. The assumption of the consensus panel that developed this TIP is that when these guidelines are used, trauma patients will receive

appropriate medical treatment that includes substance abuse assessment, if needed, and referral for substance abuse treatment or education, when that is appropriate.

Policymakers, regulators, specialty medical societies, and hospital administrators should be responsible for assuming leadership to see that the guidelines recommended in this TIP are implemented and that positive and negative incentives are in place to ensure that hospitalized patients with traumatic injuries receive appropriate medical care and assessment of underlying substance use disorders.

Preventing Injury

As this TIP points out, the role that physicians and other healthcare providers can play in preventing further injury in this group of patients, many of whom are at high risk for reinjury, should not be underestimated. When screening programs identify injured patients who may have alcohol or other drug problems, the concern shown by healthcare providers, even during brief encounters or interventions, can provide patients with significant motivation for engaging in the assessment and treatment process. Many trauma centers and hospitals employ full-time AOD counselors. The costs of AOD counseling for severely injured patients in relation to the costs for injury hospitalization are small, but the value in terms of prevention may be great.

The costs of AOD counseling for severely injured patients in relation to the costs for injury hospitalization are small, but the value in terms of prevention may be great.

Taking time to talk with patients about injury prevention measures must be seen as a legitimate "value-added" component of any clinician-patient encounter. Hospitals, health maintenance organizations, and other facilities should study institution value-added fees. State AOD agencies should encourage State legislatures to pass laws that require insurance companies and other third-party payers to reimburse for this value-added component. Reducing the demand for costly healthcare services for injury is an important goal. Currently, only 3 percent of total healthcare dollars is spent on prevention, and a much smaller fraction is spent on reinjury prevention, although, as described below, costs related to injuries are higher than for cancer or heart disease.

Injury as Disease and the Role of Alcohol and Other Drugs

Many medical authorities define injury as a primary disease, such as heart disease or cancer. In all forms of disease, tissue damage occurs. What differentiates acute injury from chronic disease such as arteriosclerosis (hardening of the arteries) is that tissue damage occurs quickly, in a matter of seconds or minutes, whereas in chronic disease or overuse injuries, the damage takes place over a longer time. The critical similarity between acute injury and other diseases is that both occur as a result of actions of specific agents in the environment. To reduce the incidence of heart disease, clinicians and public health policymakers look for underlying causes of the disease and focus on risk factors such as smoking and poor diet.

When injury is viewed as a disease, the underlying causes are examined. When people are admitted to a hospital, they have the right to expect that the underlying causes of their conditions will be sought and addressed. Hospitals and physicians are responsible for doing so. For example, when a heart attack patient is hospitalized, patient education about diet and exercise begins as soon as the patient is stabilized, and education becomes a major focus of the discharge treatment plan. However, in the treatment of trauma patients, the underlying cause of AOD abuse is seldom sought and addressed.

The Need for Screening

Although injury is strongly related to substance use, studies have shown that clinicians and hospitals that treat trauma patients do not routinely determine blood alcohol concentrations (BACs) or perform urine drug screens. A national survey of trauma centers was conducted to assess clinical practices involving alcohol during 1984 (Soderstrom and Cowley, 1987). Responses from 154 centers in 43 States and the District of Columbia indicated that BACs were routinely obtained in only 55 percent of the centers. Fewer than a third of the centers employed an alcoholism counselor/clinician. An updated survey for 1989, which involved 316 respondents, showed little improvement, with a slight increase in BAC determinations (62 percent) (Soderstrom et al., 1994). Testing for drugs other than alcohol was routinely performed at only 39 percent of the centers. However, there was a significant increase in the number of centers employing a full-time counselor/clinician with specific training in substance abuse -- 59 percent of the centers employed such counselors.

Patients with diseases have the right to expect hospitals to seek the underlying causes of their illnesses, and hospitals and physicians are responsible for doing so.

Addressing Positive Results of Screening

Even when facilities screen patients with traumatic injuries for alcohol and other drugs, positive screening results are often used to address patients' immediate medical needs but not to confirm and address underlying substance use problems. This situation is comparable to that of a physician treating a patient's pneumonia expertly but ignoring his or her tobacco dependency.

Fielding and Colquitt(1987) studied a community hospital equipped with an inpatient detoxification unit with specially trained AOD clinicians. During the study period, 84 injured motor vehicle crash patients were admitted to the hospital; their BACs averaged 215 mg/dl, which is more than twice the legal limit for intoxication -- 100 mg/dl -- in most States. None of the 84 patients were referred to the hospital's detoxification unit or for consultation with an AOD clinician. In another study, Lowenstein and associates(1990) followed 153 patients treated in an emergency department who had BACs above 100 mg/dl; 46 of these were trauma patients. Among the 153 patients, the injured intoxicated patients were three times less likely than the intoxicated patients with no injuries to receive AOD counseling or referral.

Finally, in a large study in California, MacKenzie and associates (1989) reviewed 27,000 discharge summaries from hospitalized trauma patients and found that alcohol was mentioned in

only 3 percent, even though it is generally accepted that between 20 and 50 percent of trauma admissions have alcohol use as a contributing factor.

The Risk of Reinjury

As is discussed later in this TIP, people who have sustained one traumatic injury are at greatly increased risk of reinjury. Many clinicians, researchers, and epidemiologists believe that rates of readmission for second and third traumatic injuries are strongly related to untreated substance use problems in this subgroup of trauma patients. In one recent study, more than 2,500 trauma patients (most of whom were victims of unintentional injury) were followed for 18 months after their injury; patients who were intoxicated at the time of the initial injury were 2.5 times more likely than other patients in this group to sustain a second injury during the 18-month period; those who were found to have chronic alcohol use were 3.5 times more likely (Rivara et al., 1993b).

People who have sustained one traumatic injury are at greatly increased risk of reinjury.

In a 5-year followup study of 263 trauma patients admitted to a Detroit Level 1 trauma center, Sims and colleagues (1989) found that 44 percent sustained two or more subsequent injuries that required hospitalization. Alcohol abuse was identified in 67 percent of those sustaining recurrent injury and 60 percent of those sustaining a single injury during the study period. A large proportion of persons in the study were victims of interpersonal violence.

Substance abuse treatment interventions with patients who have multiple episodes of injury hold great promise for the prevention of a significant portion of traumatic injuries. This TIP will help the State agencies and others to inform the healthcare system of the benefits of addressing AOD use in individuals who engage in high-risk behaviors likely to result in injuries -- whether the patient is dependent on alcohol or other drugs, is a substance abuser, or is someone who has used poor judgment in regard to substance use.

Substance abuse treatment interventions with patients who have multiple episodes of injury hold great promise for the prevention of a significant portion of traumatic injuries.

Scope of the Problem

In the United States, injuries are the leading cause of death among persons younger than 44 years and the leading cause of life years lost because of premature death (National Center for Injury Prevention and Control, 1991). Each year injuries affect one in four Americans. For each death resulting from injury, 19 other injured persons are hospitalized and 354 receive medical care (Adams and Benson, 1992). Each year, more than 2 million persons are injured seriously enough to be hospitalized. During 1987, one of 10 hospital discharges and 1 of 6 days of care were injury related (Rice et al., 1989).

A number of population-based studies have shown that falls are the leading cause of injury, accounting for about one-third of hospitalized injured persons. Motor vehicle crashes result in the most costly injuries and account for 22 percent of hospitalized trauma patients (Rice et al., 1989). Every year, more than 80,000 Americans receive permanently disabling injuries to the brain or spinal cord.

Costs

Costs due to injury are calculated in several ways. *Direct costs* include the amount spent for personal care for injured persons, including hospitalization, rehabilitation, nursing home care, and related professional services. *Indirect costs* (also called *morbidity costs*) are generally calculated as the value of the goods and services not produced because of injury-related illness and disability; these costs are borne by society. The direct and indirect costs of all traumatic injuries are about $110 billion per year, making injury more costly than any other disease (Rice et al., 1989).

Both types of costs are combined to calculate *lifetime costs*, which take into account the costs incurred the year in which the injury occurred plus the costs incurred in each successive year. The lifetime cost of injuries in 1990 was estimated at $215 billion (Blancoe and Faigin, 1991). Such economic costs, of course, do not take into account the pain and emotional anguish suffered by injured people and their families.

The direct and indirect costs of all traumatic injuries are about $110 billion per year, making injury more costly than any other disease.

The Role of AODs

Use of alcohol and other drugs is a well-known contributing factor to all injuries. For example, more than half of all people who incur traumatic brain injuries (TBIs) have been drinking; the percentage can range up to 72 percent in some groups of patients (Sparadeo and Gill, 1989). Patients with TBIs are often dependent on their families or are wards of the State. Even patients with mild head injuries sometimes experience permanent changes in cognition and behavior. The costs of caring for patients with TBIs exceed $25 billion annually.

As awareness of traumatic injury as a major public health problem has grown, injury prevention has become a primary goal of legislators, policymakers, and planners at all levels. Many preventive measures have been implemented, such as passing mandatory seat belt and helmet laws, increasing the legal drinking age, redesigning roads, and adding fire retardants to building materials and furniture. Communities all over America now have specially trained personnel to provide advanced life support to trauma victims at the scene of the injury. In many systems of trauma care, helicopters are used to provide rapid transportation to trauma centers. However, as Gentilello and associates noted (1988), there is "an obvious flaw in the delivery of trauma care today." A major cause of traumatic injury -- substance abuse and dependence -- is virtually ignored in the care of these patients.

The accumulated evidence makes two things clear. First, it is urgent to improve AOD screening and assessment among hospitalized trauma patients. Second, "doing it right the first time" will result in large savings -- in both human and economic terms.

Barriers and Opportunities

Many factors contribute to the present situation in which the hospitalized injured patient may not be screened for substance use, and in which positive results of screens are not addressed by referral for AOD assessment and treatment when indicated. These include

- Physicians' negative attitudes toward substance abusers and physicians' pessimism about the efficacy of treatment
- Institutional avoidance of the responsibility for treating all aspects of injury
- Lack of awareness of some healthcare providers about the benefits to the injured person of addressing substance abuse problems
- The failure of some insurance companies to reimburse for treatment related to alcohol and other drug use.

Bringing about a change is not easy in many hospitals. However, the attitudes of staff and administration evolve in positive ways in hospitals where testing and assessment become routine and even mandated. Improved nursing morale, greater patient and family satisfaction, and better patient management and followup contribute to the experiential change witnessed in these hospitals. The desire to foster such changes underlies the current movement to institute the guidelines included in this TIP.

When AOD testing and assessment become routine, hospitals can expect

- Improved nursing morale
- Greater patient and family satisfaction
- Better patient management and followup.

Although epidemiologically the relationship between AOD use and injury is striking, at the clinical level this relationship is all too frequently ignored. For example, a recent issue of the *Journal of the American Medical Association* devoted a series of articles to injury prevention. The first article reported the results of a study that examined all motorcycle injuries in California for a 2-year period to show the effectiveness of the State's 1992 helmet use law (Kraus et al., 1994). The second article summarized other research on the effectiveness of using helmets (American Medical Association [AMA], Council on Scientific Affairs, 1994). It included six recommendations, one of which was to encourage physicians to prevent injury by counseling patients to use approved helmets and wear protective clothing. An editorial accompanying these articles called for a "new perspective" on injury (viewing it as a disease) and described the role physicians could play in injury prevention (Martinez, 1994).

However, although the first article noted that in 1991 nearly half of the injured motorcyclists in the study were intoxicated, neither the AMA Council on Scientific Affairs nor the accompanying

editorial encouraged physicians to prevent injury by counseling patients about use of alcohol and other drugs while using motorcycles or bicycles.

Ethical and Legal Issues

Good medical care depends on careful attention to ethical and legal concerns. In some hospitals, unanswered legal and ethical questions -- real and perceived -- have impeded the development of alcohol and other drug screening and assessment programs for trauma patients. Until hospital administrators and staff in general hospitals have practical guidelines to deal with such issues as patient privacy and the confidentiality of some patient records containing AOD-related information, the reluctance to screen for substance use and dependence will continue.

Therefore, one of the consensus panel workgroups dealt almost entirely with ethical and legal issues. Panelists included a medical ethicist, an attorney specializing in confidentiality law, a coordinator of New York State's Health Care Intervention Service, which provides intervention programs to 18 general hospitals, and a representative of the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO).

Background of This TIP

In 1991, the American Society of Addiction Medicine (ASAM) adopted a *Public Policy Statement on Trauma and Chemical Misuse/Dependency*. The policy calls for obtaining BACs and performing urine drug screens for all hospitalized trauma patients at the time of admission. The statement further calls on the attending physician responsible for the care of the trauma patient to promptly address any positive results of these screening procedures. Such measures lead to obtaining a consultation or referral for evaluation of underlying AOD problems and treatment for these problems, if indicated.

To gain further support, ASAM brought its *Public Policy Statement on Trauma and Chemical Misuse/ Dependency* before the American Medical Association. The result was AMA Resolution A91 *Screening for Alcohol and Other Drug Use In Trauma Patients*, passed by the AMA House of Delegates in December 1991. For the first time, the AMA took a position on hospitalized trauma patients and alcohol and other drugs. In the resolution, the AMA encourages hospitals to promote alcohol and drug testing of injured patients and urges those caring for the patients to implement appropriate substance abuse evaluation and treatment.

In 1991, the American Society of Addiction Medicine adopted a policy that called for obtaining BACs and performing urine drug screens for all hospitalized trauma patients at the time of admission.

After the ASAM public policy and the AMA resolution were passed, ASAM's president, executive vice president, and trauma committee cochair sought funding to study how to provide the healthcare system -- at the Federal, State, and local levels -- with compelling reasons and guidelines for instituting appropriate early intervention and treatment for this population. The Center for Substance Abuse Treatment subsequently decided to devote a Treatment

Improvement Protocol to the subject of screening for AOD use and dependence in hospitalized trauma patients.

Some Final Notes

A number of experts in the medical and substance use treatment systems who reviewed a draft version of this TIP pointed out that the TIP focuses on alcohol more than on other drugs. Several factors have contributed to this imbalance in focus. First, alcohol is legal, available, and affordable, and its use is widespread. Although research is beginning to confirm that other drugs play a more significant role in injuries than has been previously thought, especially in motor vehicle crashes, most injuries related to substance use are due to alcohol.

In addition, most clinical research about abused substances has looked at alcohol. This focus is related to alcohol's wide use and to the fact that many aspects of its metabolism and cognitive and physiological effects are much more clearly understood than those of other drugs. For example, alcohol's dose-response pattern is clear; that is, a specific amount of alcohol produces in most people a specific degree of impairment or intoxication. The relation between a specific dose of cocaine or marijuana and the effect on cognitive and physiological processes cannot be measured in a clinical setting.

Thus, although the consensus panel that developed this TIP clearly recognizes the role played in traumatic injury by all abused substances, the more heavy focus on alcohol and its role has been unavoidable in some sections of the TIP.

Some of the field reviewers also mentioned that much of the literature cited in the TIP refers to research conducted in Level 1 trauma centers rather than in community hospitals. (The difference in facilities is explained further in Chapter 2.) Since the most severely injured patients are generally transported to trauma centers, results of research done in these settings may not reflect issues and concerns related to the entire spectrum of hospitalized trauma patients, most of whom are treated outside of Level 1 centers.

Further, in Chapter 4, the consensus panel describes several screening questionnaires for hospitals and trauma centers to consider using in their screening programs or as examples for developing their own questionnaires. As several reviewers pointed out, research continues on validating and improving the efficacy of these instruments, both in general and with various patient groups. The consensus panel felt that it was beyond the scope of this document to provide a comprehensive review of validation research or to compare the sensitivities or specificities of various instruments. Rather, the panel's objective was to describe a variety of screening instruments for readers' consideration.

Readers may be confused about the use of the terms *intoxication* and *impairment* in the TIP. Most States have established a legal definition of *intoxication.* As is explained in more detail in Chapter 3, blood alcohol concentration is measured in milligrams of alcohol per deciliter of blood. In most States the legal definition of intoxication is 100 mg/dl (sometimes expressed as a percentage -- .1 mg percent). *Impairment* from alcohol has been demonstrated at 40 and 50 mg/dl, and some States have set the legal definition of *intoxication* at 80 mg/dl. With chronic

use, many individuals develop a high tolerance for alcohol and show few signs of intoxication even after ingesting significant amounts. Thus, because of the differences in definitions, unless otherwise indicated, no attempt has been made in this TIP to standardize usage of the terms intoxication or impairment to reflect legal or clinical definitions.

Finally, it is beyond the scope of this TIP -- whose focus is on screening -- to describe the many levels and modes of treatment for alcohol and other drug problems. Readers are referred to other TIPs in this series, which provide AOD abuse treatment guidelines for a variety of patient populations, including adolescents, pregnant women, persons with mental illness, HIV-infected patients, and opiate-addicted persons, and describe various treatment modalities, including detoxification and intensive outpatient treatment. Hospital staff who do discharge planning and make aftercare referrals to AOD treatment should have a thorough knowledge of treatment and of options available in their communities.

Readers are referred to other TIPs in this series, which provide AOD abuse treatment guidelines for a variety of patient populations and which describe various treatment modalities.

Overview of This TIP

Chapter 2 *Trauma Patients* familiarizes persons in the AOD treatment field with hospitalized trauma patients, including the types of injury they sustain, the physical and psychological effects of these injuries, and the typical course of treatment for trauma patients. Five types of risk factors that contribute to the likelihood of sustaining a traumatic injury -- including alcohol and other drug use -- are presented. Major types of traumatic injury, such as traumatic brain injury and spinal cord injuries, are described in detail, while others are highlighted.

Chapter 3 *Effects of Alcohol and Other Drugs on Trauma Patients* describes the effects of acute and chronic use of alcohol and other drugs on the management of trauma patients. These effects can occur immediately, in the emergency phase of treatment, and later, in the subacute and rehabilitation phases. The chapter introduces the idea that injury creates a "teachable moment" or a unique opportunity to intervene and affect a person's behavior and choices about the use of alcohol and other drugs.

In Chapter 4 *Screening and Assessment* the processes of screening and assessment are described. Various chemical tests for detecting alcohol and other drugs in blood and urine are described. Several screening questionnaires are presented, and guidelines are provided for conducting a biopsychosocial AOD assessment of the trauma patient. The effectiveness of brief AOD interventions is reviewed, and suggestions for designing simple interventions in the hospital setting are offered.

Chapter 5 *Cost-Benefit Issues Affecting Implementation of Screening* discusses the benefits of screening of hospitalized trauma patients and the financial costs associated with implementing a screening program targeted to this population.

Chapter 6 *Legal and Ethical Concerns* explores ethical issues concerning protection of patients' confidentiality, and the use of screening. A case example illustrates ethical and legal concerns and is intended to aid healthcare workers in making clinical decisions while protecting patients' rights to privacy and confidentiality.

Chapter 7 *Recordkeeping and Quality Improvement* presents four possible models for handling records to comply with the Federal regulations governing confidentiality of AOD-related information. The chapter explores ways in which outcomes can be defined and measured in order to ensure continued quality improvement.

Appendix A lists references cited in this TIP and provides other sources of information. Appendix B is a glossary of medical terms. Appendix C lists the names of those who attended the Federal resource panel in the early stages of developing this TIP and who made valuable suggestions about the TIP's contents. The names of experts from a variety of disciplines who reviewed an early draft of this document are listed in Appendix D.

Conclusion

Knowledge of a patient's AOD use will help the treating physician and other appropriate persons involved in the patient's medical care to improve diagnosis and patient management. One goal of AOD screening and assessment of hospitalized trauma patients is to identify a target population of injured patients who have AOD abuse and dependence problems. AOD intervention and treatment appropriate to the patient's needs should be included in the treatment plan and implemented early in the course of treatment.

The National Research Council report *Injury in America: A Continuing Public Health Problem* (1985) concluded that, "Injury is not an insoluble problem. Exciting opportunities to understand and prevent injuries and reduce their effects are available. By taking advantage of such opportunities, we can save or improve the lives of countless Americans who otherwise will die or become disabled because of injuries."

The consensus panel that has developed this TIP believes that screening for AOD use in hospitalized trauma patients is one of the "exciting opportunities" available in this important effort to prevent injury and disability. It is hoped that the TIP will be used to facilitate broad implementation of AOD screening in this patient group. In addition, the panel hopes that this TIP will provoke further research, especially in the AOD abuse treatment field, in developing successful strategies for conducting prevention, intervention, and treatment with trauma patients.

Alcohol and Other Drug Screening of Hospitalized Trauma Patients
Treatment Improvement Protocol (TIP) Series: 16

Chapter 2 -- Trauma Patients

Trauma patients are people from all age groups, geographic areas, and socioeconomic classes: the elderly woman who falls and breaks her hip, the middle-aged pedestrian who is hit by a car while walking his dog on a familiar road or struck by lightning on the golf course, the adolescent with a gunshot wound or a neck injury from diving, the young adult metal worker or farm worker whose hand is injured in heavy machinery, or the child burned in a fire -- these people sustain traumatic injuries.

Purpose of This Chapter

The main purpose of this chapter is to familiarize persons in the alcohol and other drug (AOD) treatment field with hospitalized trauma patients, including the types of injury they sustain, the physical and psychological effects of these injuries, and the typical course of treatment for trauma patients -- from acute emergency treatment in hospitals and trauma centers through rehabilitation and return to the community.

The purpose of this chapter is to familiarize persons in the AOD treatment field with hospitalized trauma patients, including the types of injury they sustain, the physical and psychological effects of these injuries, and the typical course of treatment for trauma patients.

A variety of factors increase the likelihood that a person will sustain a traumatic injury, and this chapter presents a model for conceptualizing these factors and their relation to injury. In this view, a traumatic injury is seen not as an "accident" but as a condition resulting from the interaction of many factors. An assumption of this view of injury as a public health problem is that, like heart disease, it can to a large extent be prevented when risk factors are reduced.

This chapter does not attempt to provide a comprehensive description of traumatic injuries and their treatment. Only the major types of traumatic injury are described in detail, while others are highlighted. Particular points covered about each type of traumatic injury include its major causes, its incidence in the general population, and the proportion of patients for whom AOD use and dependence contribute to the injury.

It is hoped that when reading this chapter, persons in the AOD treatment field begin to consider this diverse patient population in terms of identifying and treating the AOD-abusing and -

dependent individual. This population is similar to other AOD treatment populations with comorbid conditions, such as persons with dual diagnoses (mental illness and AOD use disorders) or with serious, chronic medical conditions. Both conditions must be treated for the overall prognosis to improve. It is hoped that models or strategies for working with this patient group will suggest themselves to readers.

Overview of the Problem

As discussed in Chapter 1, about 2.5 million persons with traumatic injuries are admitted to U.S. hospitals each year (Rice et al., 1989). Annual direct costs for care, including personal medical and nonmedical costs of care, amount to nearly $45 billion; annual indirect or morbidity costs, which include the value of goods and services not produced by injured individuals, are estimated at nearly $65 billion (Rice et al., 1989). Comparable costs for cancer are approximately $35 billion in direct costs and $12 billion in indirect or morbidity costs (Rice et al., 1989). Thus, the measurable costs due to trauma injury amount to more than $100 billion each year, nearly twice the costs for cancer.

Traumatic injury has been recognized as a leading public health problem, and policymakers at all levels have attempted to implement injury-prevention measures. As discussed in Chapter 1 and addressed in more detail later in this chapter, alcohol-and-other- drug use plays a major role in traumatic injury. Persons with untreated AOD problems who have sustained one traumatic injury are at increased risk of reinjury. Because of the growing emphasis on injury prevention, it is likely that hospitalized trauma patients will come increasingly to the attention of the AOD treatment field. However, many persons in the field -- treatment personnel, program administrators, and policymakers -- lack knowledge of or experience with this patient population. Such a lack may hamper present and future efforts to design and implement effective AOD interventions for this patient group.

Annual Costs: A Comparison

- Trauma injury: $100 billion
- Cancer: $47 billion.

Research Funding

Although it has long been known that the costs of injury to society are higher than for any other disease, research on injury receives less than 2 cents of every Federal dollar spent for research on health problems (National Research Council, 1985). Annual spending on injury research amounts to approximately $160 million. The National Cancer Institute spends $1.4 billion annually on cancer research, and the annual budget for research on cardiovascular illness at the National Heart, Lung, and Blood Institute is $930 million. Injury research funds thus represent only 11 percent of funds spent on cancer research, and 17 percent of funds spent on heart disease research.

Definition of Traumatic Injury and Views of the Trauma Patient Definition

For the purposes of this Treatment Improvement Protocol (TIP), **traumatic injury** *is defined as tissue damage caused by external force or violence. Acute injury results from the rapid transfer (i.e., as little as a few seconds or less) of excessive amounts of one of the five forms of energy (kinetic, thermal, chemical, and electrical energy and radiation) or the excessive removal of one of these forms (for example, in asphyxiation or hypothermia). Acute injury can be intentional, such as injuries resulting from assaults or self-infliction. Unintentional injuries result, for example, from falls. Injuries may be fatal or nonfatal. Kinetic injuries are often classified as penetrating (passing into the body), such as a stab wound or gunshot wound, or blunt (striking the outside of the body), such as internal injuries resulting from a fall.*

This definition differentiates traumatic injury from overuse injuries such as carpal tunnel syndrome and from chronic disease, in which tissue damage occurs over a more extended time.

In general, there is wide agreement on the types and severity of injuries that should be treated in the hospital. Although severity of injury is the main factor in determining whether a patient is hospitalized, some patients, such as those with mild head injuries or an altered mental status, who may not need hospitalization for their primary injury, are sometimes hospitalized for a short time for observation. Social factors, such as lacking caregiver supports and being homeless, sometimes play a role in the decision to hospitalize, although this decision is becoming increasingly difficult because of stringent admission criteria set by third-party payers. In general, hospitalized trauma patients are those with moderate to severe injuries requiring specialized evaluation and treatment.

Research Dollars Spent Annually on Three Public Health Problems

- Trauma Injury: $160 million
- Cancer: $1.4 billion
- Cardiovascular illness: $930 million.

Different Views of the Trauma Patient

Clinically, trauma patients can be viewed in several ways. Physicians focus on the patients' immediate needs, according to the physicians' specialties. Because these patients are often near death or in danger of sustaining permanent disability from conditions needing immediate treatment, views of them are often narrow and necessarily focused on the injury. The emergency department physician and staff, as well as the trauma physician, generally see the patient from the perspective of the mechanism of injury, which alerts them to look for particular types of injuries.

Neurosurgeons or orthopedic surgeons mainly view the patient from the perspective of the organ or organ system injured. For example, to a specialist called in to deal with the patient's brain injury or shattered hip bone, the mechanism of injury is not as important as the site of the injury

and the type of injury. Similarly, physical rehabilitation specialists may focus on restoring the patient's muscle strength or range of limb movement or independent functioning.

As can be seen, these views of the trauma patient begin with the point of injury and focus on the outcomes of the traumatic event. This approach can be fragmented and does not result in a holistic picture of trauma patients. In terms of injury prevention, these views of trauma patients have served them poorly.

Injury as a Disease

A different approach to this patient group is to view traumatic injuries as a disease, like heart disease, with many potential risk factors (Waller, 1987). For example, the initial medical workup of a patient who has had a heart attack generally includes several questions related to family history of heart disease, nicotine use, diet, and level of activity. These questions are asked to clarify the clinical picture and to help the patient understand the underlying cause of his or her condition and the required treatments -- and to prevent further illness.

A different approach to this patient group is to view traumatic injuries as a disease, like heart disease, with many potential risk factors.

Such educational and preventive efforts rarely take place with hospitalized trauma patients whose injuries are related to alcohol and other drug use. However, when injury is viewed as a disease, clinicians are more likely to address underlying risk factors, such as a family history of AOD use, episodes of heavy drinking, and other areas of unsafe behavior such as the failure to use seatbelts.

From the disease perspective, many interacting risk factors contribute to the occurrence of a traumatic event such as a motor vehicle crash. A poorly lit road with dangerous curves increases the risk of a vehicle crash. Add to that icy conditions and an adolescent short on driving experience, attention, and concentration but long on risk-taking behavior, and the risk of a crash increases greatly. Add alcohol consumption to this mix, and from this perspective, the situation appears to be one that almost certainly will end in a crash.

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Predisposing Factors in Traumatic Injury

Epidemiologists and other researchers have made enormous strides in their understanding of factors leading to injury. Beginning in the 1940s with the work of Hugh De Haven, M.D., at Cornell University and continuing through the 1960s and 1970s with the work of William Haddon, Jr., M.D., researchers have attempted to model risk factors for injury in order to develop

more effective prevention strategies. Several sophisticated models of risk factors and matrices for prevention strategies have been used (Haddon, 1980). However, for the purposes of this TIP, a simpler conceptual model is described.

Risk Factors Other Than AOD Use

As shown in Exhibit 2-1, factors other than AOD use that increase the risk of traumatic injury can be classified into four areas: physical, environmental, socioeconomic, and personality/psychological factors. As described above, several factors often interact to contribute to a traumatic injury. Reducing the level of any single factor, such as improving the lighting and paving of roads, can greatly reduce resulting injuries.

Physical factors. Physical factors are those related to the individual person, such as age, gender, and physical health. Younger persons, especially males, are at increased risk of injury because they are generally more active than older persons. Elderly people with poor vision, weak lower extremities, and impaired or decreased balance are at greater risk of falling; because of progressive bone loss they may also sustain severe injuries as the result of relatively low-impact forces.

Environmental factors. Environmental factors increase the risk of traumatic injury. Certain States have passed legislation to reduce speed limits, increase the legal drinking age, and make helmets mandatory for motorcyclists and bicyclists, thereby greatly reducing people's risk of injury. Environmental factors can also relate to an individual's access to guns and use of cars or alcohol and other drugs, as well as to the safety of the person's location, such as his or her living near a body of water or in a high-rise building.

Socioeconomic factors. Socioeconomic factors such as being employed in a high-risk job or living in a high-crime neighborhood or in a poorly maintained building with few safety features also contribute to the risk of traumatic injury. Driving old or poorly maintained cars also increases the risk. Other socioeconomic factors are related to the breakdown of families that is often associated with poverty. Young people may join gangs to replace the family bonds, and enter a culture where violence is promoted and accepted as a routine of daily life.

Personality/psychological factors. Risk taking, antisocial behaviors, and mental illness contribute to risk. Persons who have depression are at increased risk of suicide, and those with schizophrenia or other psychotic disorders may lack the judgment to remove themselves from dangerous situations.

AOD Use as a Risk Factor in Injury And Reinjury

Use of alcohol and other drugs has long been recognized as a major, independent risk factor in unintentional fatal and nonfatal injuries and in intentional injuries such as assaults, homicides, and suicides. Indeed, some clinicians believe that traumatic injury is a marker of alcohol abuse (Clark et al., 1985; Maull, 1982). In 40 to 50 percent of fatal motor vehicle crashes and 25 to 35 percent of nonfatal crashes, at least one participant is legally intoxicated. Alcohol has been found to play a role in more than 50 percent of homicides and more than 50 percent of burns as well as

48 percent of hypothermia and frostbite cases and 40 percent of falls (National Institute on Alcohol Abuse and Alcoholism, 1989).

It has been conservatively estimated that 20 to 25 percent of all persons hospitalized for injury are alcoholics or have a drinking problem (Waller, 1988). Evidence of chronic alcoholism has been found in up to three-fourths of some samples of trauma patients (Rivara et al., 1993a). A substantial proportion of injured pedestrians have blood alcohol concentrations above 100 mg/dl (National Research Council, 1985), which is the legal definition of intoxication in most States.

Although the role of drugs other than alcohol in traumatic injuries has not been as thoroughly investigated, studies have shown that cocaine, amphetamines, and marijuana, especially in combination with alcohol, play a significant role in traumatic injuries of all kinds, especially motor vehicle crashes (Bailey, 1993, 1990; Brookoff et al., 1993; Clark and Harchelroad, 1991; Marzuk et al., 1990; Rivara et al., 1989; Sloan et al., 1989; Soderstrom et al., 1988).

In a recent study in Memphis, drivers who had been arrested for reckless driving and who had received negative results on Breathalyzer tests for alcohol use were given rapid urine tests in a van set up at the scene of the arrest (Brookoff et al., 1994). Of 150 drivers who submitted urine samples at the scene, 59 percent tested positive for either cocaine (13 percent) or marijuana (33 percent) or for both drugs (12 percent).

How AODs Increase Risk

The risk of injury is increased both by immediate use of alcohol and other drugs (impairment and intoxication) and by chronic AOD use. Many aspects of AODs and their effects play a role, including the following:

- !AODs decrease the level of alertness.
- !AODs impair motor function, diminishing coordination and balance and increasing reaction time.
- AODs impair judgment.
- AODs impair perception and cognitive abilities.
- AODs increase risk-taking behavior and especially feelings of invulnerability (especially among adolescents and young adults).
- AODs affect the emotions and reduce inhibitions, intensifying feelings of anger and depression and increasing impulsivity.
- Use of AODs is associated with increased violent behavior.
- Chronic AOD use can render a person more medically fragile, and thus injuries sustained are more severe.
- Obtaining AODs, especially illicit drugs, may place the individual in an unsafe environment.

Evidence of chronic alcoholism has been found in up to three-fourths of some samples of trauma patients.

Reinjury

Persons who experience one traumatic injury have been found to be at greatly increased risk for reinjury. For example, after one head injury, a person is three times more likely than someone in the general population to sustain a second head injury. After a second injury, the relative risk for a third injury increases to eight times the normal risk (Annegers et al., 1980).

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Untreated AOD use disorders play a significant role in reinjury. In one study, the readmission rate for more than 2,500 adult patients treated at a Level 1 trauma center was determined over a 28-month period. Patients who were intoxicated on the initial admission were 2.5 times more likely than other patients in this group to be readmitted for new injuries. Chronic alcohol use among this group was determined by using the Short Michigan Alcohol Screening Test (SMAST) and by measuring gamma-glutamyltransferase (GGT) values. The relative risks for patients with positive SMAST scores and abnormal GGT values were 2.2 and 3.5, respectively (Rivara et al., 1993b).

Neglect of AOD Use as a Risk Factor

Although use of alcohol and other drugs is a major predisposing factor in traumatic injury, and the role of AODs is well known and has been heavily documented, medical management of trauma patients seldom addresses their AOD use and dependence. Indeed, one recent study at a Level 1 trauma center found that intoxicated patients with traumatic injuries were significantly less likely than uninjured intoxicated patients to receive onsite psychiatric evaluation or referral to AOD use treatment (Lowenstein et al., 1990). Another study reviewed the care provided to 84 injured drivers (average blood alcohol concentrations more than twice the legal limit) admitted to a hospital over a 6-year period; only two patients, both of whom had been previously given a diagnosis of alcoholism, were referred for AOD counseling (Colquitt et al., 1987).

One of the goals of this TIP is to focus the attention of agency and program administrators, policymakers, and treatment providers from many disciplines on this glaring omission in the treatment of trauma patients. It is the hope of the consensus panel that addressing the AOD risk factor in the treatment of trauma patients will become as much a part of overall, holistic medical treatment as addressing diet and exercise in the treatment of heart patients.

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Treatment of Trauma Patients

Decisions About Trauma Care Settings

Trauma patients receive initial treatment in one of several different settings, depending on the community where they are injured, their State's emergency transport and medical system, and the initial assessment of their injuries. In many communities, transport systems are designed to circumvent hospital emergency departments for seriously injured patients, often carrying them (many by helicopter) directly to a regional Level 1 trauma center (see below). Although Level 1 trauma centers play a crucial role in treating very seriously injured persons, it is important to note that most trauma patients are treated in community hospitals.

Levels of Trauma Center

Trauma centers are specialized inpatient units that care for injured patients only. They are usually part of full-service hospitals, and a few are freestanding. Trauma centers are set up to treat serious, life-threatening injuries and have resources that go far beyond what is found in a community hospital emergency department. They follow strict diagnostic and resuscitation protocols utilizing a highly organized, highly trained team of trauma professionals. Blood and urine samples are routinely drawn from patients, and it is relatively simple to fit blood alcohol concentration (BAC) determinations and toxicologic screens into the existing structure.

Trauma centers are categorized as Levels 1 through 4 in the *Resources for Optimal Care of the Injured Patient*, developed by the American College of Surgeons (ACS) committee on trauma (ACS, 1993). This document sets standards for access to care, prehospital care, hospital care, and rehabilitation. There are ACS-verified Level 1 trauma centers in many urban areas and many university medical centers nationwide. Level 2 facilities meet the same standards of care without research or teaching components. Level 3 facilities have the primary purpose of treating less serious injuries and transporting more seriously injured patients to the next higher level of trauma care. Many community hospitals are categorized as Level 2 or 3. Level 4 facilities are generally in rural areas. According to the ACS document on optimal care, all Level 1 and 2 trauma centers should have the laboratory capability of performing blood alcohol testing and routine toxicology.

Although the American College of Surgeons has a voluntary, formal certification procedure for trauma centers, the majority of trauma centers are self-designated and do not undergo the verification process. However, many States are beginning to regulate trauma care legislatively, establishing standards that are very close to those in the *Resources for Optimal Care of the Injured Patient.*

Although Level 1 trauma centers play a crucial role in treating very seriously injured persons, most trauma patients are treated in community hospitals.

Trauma Patient Flow

Patient flow in community hospitals differs from that in Level 1 trauma centers, even though community hospitals may be categorized as Level 2 or 3 trauma centers. One important difference is that the most seriously injured patients at the community hospital emergency department will be transported to higher levels of care (i.e., trauma centers). In community hospitals, care is less protocol driven, especially when it comes to drawing blood and urine for alcohol and other drug screening. In community hospitals, the emergency department staff decides who is screened, and many do not order screening tests. Studies have shown that many emergency department physicians believe they can recognize an intoxicated patient without screens and that they consistently overestimate their ability to do so.

Standard trauma protocols, defined by the *Advanced Trauma Life Support Manual*, issued by the American College of Surgeons committee on trauma, are followed at most trauma centers. The manual defines the standard of care in all hospitals treating trauma victims, from rural Level 4 facilities to Level 1 urban trauma centers. Trauma is a distinct specialty with practitioners trained to perform specific tasks.

The emergency department is the entry point into the hospital system for trauma patients, and the emphasis is on immediate life-threatening issues that include management of the airway, breathing, and circulation. Once these vital functions are stabilized, the patient is rapidly moved to the next stage of treatment. Emergency department personnel perform initial assessment of the patient's immediate needs and status to decide whether the patient will be admitted to the hospital.

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The total amount of time spent in the emergency department by a trauma patient can be as short as several minutes. These are critically injured patients and any treatment delay could mean permanent disability or death; therefore, trauma treatment procedures in the emergency department must be as brief as possible.

From the emergency department, patients may be transported to the operating room, to the intensive care unit, to the hospital ward, or to other areas of the hospital for further diagnostic tests. In trauma centers, trauma surgeons remain the principal healthcare providers throughout the patient's hospital stay. Most community hospitals do not employ a full-time trauma surgeon, and patient care is directed by the attending physician.

The organ system most injured tends to determine who the attending physician will be. For example, patients with fractures are assigned to orthopedic surgeons, and those with closed-head injuries go to either neurologists or neurosurgeons. Patients with nonsurgical traumatic injuries, such as those who have attempted suicide with pills and/or alcohol or who are suffering from hypothermia or smoke inhalation, may go to intensive care units of hospitals, where they receive

care from physicians, usually internal medicine physicians, with specialized training in intensive treatment.

The treatment of trauma patients is a team effort involving a wide range of professionals with specialized knowledge from several disciplines. The trauma team can include a wide range of personnel. The following personnel are involved in early care of the trauma patient and contribute specialized knowledge to clinical decisions during the patient's hospitalization:

- Emergency department physicians
- Nurses with a variety of roles
- Trauma surgeons
- Anesthesiologists, anesthetists
- Critical care specialists (M.D.s)
- Respiratory therapists
- Radiologists and radiology technicians
- Neurosurgeons
- Orthopedic surgeons
- Plastic/maxillofacial surgeons
- Operating room staff (for some patients).

After the acute phase of treatment, other personnel may become involved in the patient's care. These include

- Occupational and physical therapists
- Physiatrists (rehabilitation physicians)
- Psychiatrists
- Neurologists
- Nutritionists
- Pain management specialists
- Social workers
- Other medical subspecialists.

The Addictionist and Other AOD Clinicians

Unfortunately, the addictionist or other AOD clinician is rarely included in this wide array of specialized personnel, and treatment of these patients often proceeds with little attention to the acute management problems related to AODs and to the underlying cause of the injury. Because use of AODs is the underlying cause of approximately 50 percent of traumatic injuries, AOD treatment personnel should play a prominent role on the trauma team. As is discussed in Chapter 3, use of AODs complicates the assessment and treatment of these patients and sometimes presents a significant obstacle to their medical recovery and overall prognosis.

The addictionist or other AOD clinician is rarely included on the treatment team, and treatment of these patients often proceeds with little attention to the acute management problems related to AODs and to the underlying cause of the injury.

Treatment Phases

Acute Phase

The acute phase of treatment comprises the patient's time in the emergency department/resuscitation area and operating room. This period usually lasts several hours and may extend to 12 hours or more.

Subacute Phase

After the patient leaves the emergency department, he or she is admitted to the hospital under the care of the trauma team. The severely injured patient may spend days or months in the acute or intensive care unit. The goal of the subacute phase of treatment is to enhance recovery from the injury so that the patient can be discharged from the intensive care unit to a step-down unit within the hospital (a nonintensive care setting) and eventually to an inpatient physical rehabilitation unit or facility. Less severely injured patients are discharged to their homes with needed support services.

Rehabilitation

Inpatient physical rehabilitation usually begins in the acute care setting and is emphasized in the subacute and step-down areas of care. Some patients require only a few days of inpatient physical therapy before discharge. For others, rehabilitation stays may last 6 to 12 weeks (third-party payers often limit stays to 90 days). Sometimes the patient is transferred to a freestanding rehabilitation facility.

Rehabilitation staff may include occupational and physical therapists, physiatrists, specialized nurses, a speech therapist, a psychiatrist, a neurologist, a prosthetics designer, and a social worker. The goal of rehabilitation is to restore as much of the patient's functioning and independence as possible and to educate the patient, the family, and other caregivers about the ongoing effects of the injury. For example, decubitus ulcers (i.e., bedsores or pressure sores) can be a serious problem in paraplegic and quadriplegic patients who have lost sensation in their hips and legs, and they must learn to adhere to a schedule of shifting their position to avoid these problems.

Ongoing outpatient management of some patients may include continuing physical and cognitive rehabilitation and periodic medical examinations to ensure that they are complying with treatment regimens and schedules. Many trauma patients, especially those with severe head and spinal cord injuries, require periodic lifetime medical followup and ongoing assistance with personal care and activities of daily living when they return to the community. Their families may require training to learn to assist them. Family counseling may be necessary to help all family members adjust to the changes and challenges. Lifetime goals are the achievement and maintenance of maximum health, functioning, and independence.

Phases of Treatment of Trauma Patients

- Acute phase: care provided in the emergency department/resuscitation area and operating room
- Subacute phase: care provided in the acute or intensive care unit
- Rehabilitation phase: care provided in a hospital unit or freestanding rehabilitation facility
- Continuing and followup care: care provided as needed for patients with chronic conditions.

Types of Injury

In this section, two types of central nervous system injury are highlighted -- traumatic brain injury and spinal cord injury. These are perhaps the most devastating types of injury because they often result in permanent loss of function and because many of these patients are very young. However, fractures are the most common types of injury seen in hospitals. Fractures may occur as part of multiple injuries sustained in motor vehicle crashes or may be isolated injuries resulting from falls. Falls are the leading cause of nonfatal injury. Elderly persons are especially at risk for fractures resulting from falls (see discussion of the elderly later in this chapter).

Traumatic Brain Injury

Definition and Description

Trauma to the head may involve the skull (cranium) or the brain, or both (craniocerebral trauma). The latter form of injury is divided into three categories: closed head injury, depressed fracture of the skull, and compound fracture of the skull.

Traumatic brain injury (TBI) may produce a diminished or altered state of consciousness, ranging from slight dizziness to coma. TBI results in impairment of cognitive abilities and/or physical functioning. It can also result in the disturbance of behavioral or emotional functioning.

These impairments may be either temporary or permanent and may cause partial or total functional disability or psychosocial maladjustment. Even patients with mild head injuries can experience devastating effects in their long-term recovery from injury. Subtle but profound effects, especially in relation to executive function (problem solving, abstraction, impulse control, and judgment), can produce in these patients a shaken sense of self. Other effects can include insomnia and vertigo. Many patients who experience significant improvement in cognitive skills during inpatient rehabilitation discover that when they return to their jobs or to other life tasks, they cannot read at the same level, cannot think abstractly or solve problems as they used to, and have poor impulse control. Some undergo personality changes. Many patients experience notable mood disturbance (anger, depression, agitation) within 6 to 12 months after their injury.

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Prevalence and Incidence

The National Head Injury Foundation reports that a traumatic brain injury occurs about every 15 seconds. From 75,000 to 100,000 persons die annually from these injuries. It is conservatively estimated that 500,000 new cases of hospitalizable TBI occur every year. About one of every three survivors of TBI has some degree of permanent disability (National Head Injury Foundation, 1994).

Brain injuries can occur at any age but peak incidence is in young adults between the ages of 15 and 24; nearly 70 percent of head injuries occur in persons under 30 (National Head Injury Foundation, 1994). Men are three to four times more likely to incur such injuries. The annual incidence of TBI for the general population is about 1.8 to 2.4 per 1,000, based on epidemiological studies of patients admitted to a hospital for head trauma.

Those who have had one head injury are at increased risk for a reinjury, especially if AODs are involved in the first injury. It has been commonly observed that those who sustain a second injury have increased likelihood of being intoxicated at the time. The effects of multiple head injuries are not well understood. Most clinicians believe that the effects are cumulative. These effects and those of AODs are likely to be synergistic.

The total direct and indirect costs of medical treatment and rehabilitative and support services for brain-injured patients are about $25 billion per year. Because this is mostly a group of young patients, costs for lifetime care are high, as is the loss to society of potentially productive individuals. The National Head Injury Foundation has estimated that the total lifetime cost for an individual with severe head injury is about $4,600,000. This is about twice the lifetime cost of care for an individual with cancer or heart disease.

Causes

According to the National Head Injury Foundation, motor vehicle and motorcycle crashes cause about one-half of all traumatic brain injuries. Falls account for 21 percent, assaults and violence for 12 percent, and sports and recreation incidents for about 10 percent.

Low socioeconomic status is a significant risk factor for traumatic brain injury. In a large prospective study, Parkinson and colleagues (1985) found that chronically unemployed persons and welfare recipients accounted for 11 percent of the population but 47.5 percent of the cases of head injury. Rimel and associates (1982) found that 42 percent of head-injured persons were chronically unemployed or unskilled laborers.

AOD use -- especially use of alcohol -- and head trauma are very closely related. Findings vary from study to study, but they generally indicate that more than 50 percent of all those who sustain head injuries have been drinking alcohol. Other estimates of alcohol use in head-injured patients have ranged as high as 72 percent (Rimel and Jane, 1983).

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severe head injury is about $4,600,000. This is about twice the lifetime cost of care for an individual with cancer or heart disease.

In addition, the physiological effects of alcohol and many drugs have the potential for causing brain damage and for increasing the susceptibility of brain tissue to injury. Alcoholics may be more vulnerable to brain injury because of bone loss in the skull. The mean density of bone in alcoholics with good nutrition is diminished to as much as 58 percent of that of nonalcoholics with good nutrition (Bikle et al., 1985).

Patient Management Problems

Physical disabilities resulting from head injury range from minimal motor deficits to complete paralysis. The spectrum of cognitive disabilities resulting from head injury includes impairments in

- Orientation
- Attention and concentration
- Learning and memory
- Language
- "Visuoperceptual" function (i.e., spatial relationships)
- Reasoning
- Executive function (problem solving, abstraction, impulse control, judgment)
- General intelligence.

Many head-injured patients need extensive rehabilitation for serious cognitive deficits caused by the injury. AOD counselors who encounter these patients may be baffled by their impulsivity and impaired memory and may become frustrated about the compliance problems these patients have with any type of treatment, including AOD abuse treatment.

Spinal Cord Injuries

Definition and Description

Spinal cord injuries involve complete or incomplete disruption of the spinal cord. Such injuries can result in permanent motor disability, usually paralysis of the arms or legs (paraplegia) or both (quadriplegia) and in varying degrees of motor and sensory deficits. Spinal cord injuries can also result in loss of bowel and bladder control and sexual function. Frequently, spinal-cord-injured patients also have traumatic brain injury. Patients who sustain injuries to the spinal cord only do not have the cognitive deficits that result from traumatic brain injury. However, many have cognitive problems related to AOD use, which for many patients precedes their injury.

Causes

The causes of spinal cord injuries are similar to those of TBI, and the two injuries can occur as a result of the same event. About 50 percent of spinal cord injuries are due to motor vehicle and

motorcycle crashes; falls account for about 20 percent of these injuries, and acts of violence for about 15 percent (Stover and Fine, 1986).

All of these causes are significantly associated with alcohol use, and research suggests that between 39 and 50 percent of spinal cord injuries are attributable to intoxication at the time of injury (Fullerton et al., 1981; Heinemann et al., 1988).

Although persons who sustain spinal cord injuries do not have the cognitive deficits that result from traumatic brain injury, many have cognitive problems related to AOD use, which for many patients precedes their injury.

Incidence

The incidence of spinal cord injuries is lower than that of TBI, with about 10,000 to 20,000 Americans sustaining such injuries each year (Rice et al., 1989). Although these injuries account for a small percentage of hospitalized trauma patients, the injuries result in significant physical and psychological changes, and patients require extensive long-term medical treatment, rehabilitation, and lifetime followup care.

Course of Treatment

As with all injured patients, the goal of treatment is to maximize functioning to attain or approximate premorbid levels. Spine-injured patients often receive intensive acute inpatient treatment and several weeks of inpatient rehabilitation. During rehabilitation, these patients need to acquire many new self-care skills. They may need help with personal care after discharge.

Other Types of Injury

Internal Injuries

Internal injuries include blunt and penetrating injuries to internal organs. Abdominal injuries include those to the liver, spleen, bowel, bladder, kidney, and blood vessels. Injuries to the chest include those to the heart, lungs, and large vessels such as the aorta and pulmonary artery. Often these injuries are multiple.

Causes of internal injuries include motor vehicle and bicycle crashes, falls, sports, and violence. Those resulting from motor vehicle crashes and violence, especially stabbings, have a well-documented relationship with use of AODs.

Burns

Burns are caused by flames, hot liquids, steam, chemicals, electricity, and contact with hot surfaces.

Specialized burn units or facilities exist for the care of burn patients. About 54,000 persons are hospitalized each year for burns, with the very young and the elderly at highest risk (Rice et al., 1989). Two of the major risk factors for this type of injury are alcohol and smoking. Typically, an intoxicated person falls asleep with a lit cigarette. Others lose consciousness with a part of the body resting on a hot surface. Because of diminished pain sensation resulting from intoxication, they awaken with irreversible skin and soft-tissue damage.

It has been estimated that alcohol plays a role in more than 50 percent of burn injuries (National Institute on Alcohol Abuse and Alcoholism, 1989). Obtaining data on the percentage of burns that can be attributed to alcohol use is more problematic than for other types of traumatic injury because, in many of these patients, blood is not drawn in the emergency room, and therefore BACs are often not determined. In one study, 64 percent of persons who died as a result of burns had BACs greater than 100 mg/dl (Waller, 1972).

It has been estimated that alcohol plays a role in more than 50 percent of burn injuries.

Care and rehabilitation of burn patients is extensive; when burn scars cross joints involving the neck, arms, and legs, they can greatly restrict the range of limb motion as they heal. Patients must adhere to a careful and rigorous daily regimen of limb movement as well as many months of followup to control scar formation. To do so, they must be especially cooperative with the treatment team, and those experiencing withdrawal syndromes or AOD-related behavior problems can present significant problems.

Near-Drowning

More than 5,000 persons drowned in 1985, and another 5,500 were hospitalized because of near-drowning incidents (Rice et al., 1989). Alcohol has been detected in the majority of adults who drown while swimming or boating (Dietz and Baker, 1974). Many patients in this group are adolescents or young adults. Disabilities in this group are related to brain and lung injury.

Alcohol has been detected in the majority of adults who drown while swimming or boating.

Special Populations of Trauma Patients

As discussed in the early part of this chapter, a number of factors are associated with an increased risk of traumatic injury in addition to the primary risk factor of AOD use. Among these are individual physical factors such as age, gender, and preexisting illness; socioeconomic factors such as poverty and unemployment; environmental factors such as living in a high-crime area; and personality factors such as risk-taking behavior. As with any disease or public health problem, the loading of these factors in a particular subgroup of the population increases the prevalence of the phenomenon under study in that group.

In this section, special populations of trauma patients and the risk factors that increase the prevalence of these injuries among them are described.

Adolescents

Injury is the leading cause of morbidity and mortality in the adolescent age group, resulting in many years of potential life lost and untold loss to society. Adolescents are physically very active, and risk-taking behavior is prevalent in this group.

The association between AODs and traumatic injuries among adolescents has not been as well studied as that among adults. In 1991, 1.4 million youths ages 12 to 17 reported use of alcohol and other drugs (Johnson et al., 1994). In one study of 202 adolescents in AOD abuse treatment, 25 percent reported prior emergency medical treatment resulting from an incident that occurred while they were under the influence of drugs or alcohol (Schwartz, 1986). Another study found that 34 percent of adolescents who were admitted to an urban pediatric emergency department had a toxicology screen positive for AODs. The mean age of those with a positive screen was under 15.5 years (Loiselle et al., 1993).

Adolescence is the time when people are initially exposed to alcohol and other drugs, and many adolescents have little knowledge of the potential AOD effects. An AOD intervention at this time, especially among hospitalized adolescents, may have significant preventive effects on the development of chronic use and on injury and reinjury.

Two other TIPs in this series, *Screening and Assessment of Alcohol- and Other Drug-Abusing Adolescents and Guidelines for the Treatment of Alcohol- and Other Drug-Abusing Adolescents*, describe the special issues and concerns associated with treatment of adolescents.

> One study found that 34 percent of adolescents who were admitted to an emergency department had a positive AOD screen. The mean age of those with a positive screen was under 15.5 years.

Socioeconomic and Cultural Groups

Negative socioeconomic factors are associated with higher rates of injury. These factors include unemployment and poverty; poor education, housing, and healthcare; and a breakdown in the family support system as a result of multigenerational poverty. Many affected persons are members of cultural or ethnic minority groups. Several risk factors for traumatic injury affect these groups in addition to AOD use and its associated violence, increasing the risk of traumatic injury. Environmental factors include residence in high-density, high-crime areas. In addition, Native Americans live largely in isolated areas where access to educational, vocational, and social opportunities is reduced.

Elderly Persons

Although most traumatic injuries occur in persons under age 44, physical factors such as decreasing motor and cognitive abilities increase the risk of injury among the elderly. Elderly

persons are generally more unstable physically than younger persons; they exhibit lower extremity weakness and decreased balance and vision. Because of their relative physical fragility, they sustain more serious traumatic injuries relative to the forces or mechanisms. The elderly thus constitute a significant proportion of hospitalized trauma patients.

Falls are the leading cause of nonfatal injury, accounting for nearly 800,000 hospitalizations annually; the death rate resulting from falls among people aged 75 and older (elderly) is nearly 12 times as great as the rate for all ages combined, and the risk of hospitalization is nearly seven times as great (Rice et al., 1989).

The incidence of alcoholism is lower among elderly persons than in the general public, a reduced incidence that is related to the facts that chronic AOD users have lower life expectancies and that addiction seems to diminish with advancing years. However, even small amounts of alcohol can cause significant motor and cognitive impairments in this group. Many clinicians see relatively large numbers of elderly persons who continue to use alcohol. In addition, because of the stigma associated with alcoholism, especially in older generations, alcohol disorders frequently go undiagnosed as a result of lack of self-reporting by elderly patients and their families. Physicians frequently "enable" drinking in elderly persons by not confronting the issue.

The use of multiple prescription medications may cause similar impairments in the elderly. Sedative-hypnotics, such as benzodiazepines, are frequently prescribed to the elderly. Even low doses of these medications can cause impairment. In particular, the long-acting benzodiazepines such as diazepam (Valium) have been associated with falls (Ray et al., 1989).

Some elderly persons who have taken a particular psychoactive medication for years -- for example, pain medication -- may develop an addiction and may experience withdrawal symptoms when they stop, either on their own or in the hospital.

Hip and femur fractures are a type of traumatic injury with a higher incidence rate among the elderly. In younger people, bones such as the hip and femur (thighbone) are more dense and protected by greater muscle mass, and thus are relatively more difficult to break than those of elderly persons. However, as a result of bone loss associated with osteoporosis in postmenopausal women and with aging in general, elderly persons frequently fracture these bones after simple falls. As mentioned above, alcoholic patients may also experience extensive bone loss, which multiplies the risk in this group.

Even small amounts of alcohol can cause significant motor and cognitive impairments in elderly persons.

Approximately 300,000 Americans sustained hip fractures in 1993. Nearly 90 percent of these injuries were sustained by persons over age 65. The American Academy of Orthopedic Surgeons has estimated that medical costs and lost income from hip fractures add up to more than $9.8 billion per year, or $35,000 per fracture (Rovner, 1994).

Persons With Serious Mental Illness

Several risk factors for traumatic injury affect persons with serious mental illness, a group that has high rates of AOD use disorders. Studies have indicated that 40 percent of seriously mentally ill patients in the community abuse a psychoactive substance (Schuckit, 1989). In addition, many persons with serious mental illness have low socioeconomic status, and many are homeless, increasing their risk of assaults and other injuries.

Several risk factors for traumatic injury affect persons with serious mental illness, a group that has high rates of AOD use disorders. Studies have indicated that 40 percent of seriously mentally ill patients in the community abuse a psychoactive substance.

Three groups of mentally ill persons are of note in discussions of traumatic injury. Severely depressed persons' suicide attempts can result in acute injuries; in a large proportion of such cases, alcohol is involved. Up to 70 percent of patients who attempt suicide use mind-altering drugs, especially alcohol, prior to the attempt. Attempted suicide may represent part of a chronic use problem. Depressed persons may be less attentive and less cautious. Hypomanic patients often place themselves in dangerous situations, taking risks or provoking others.

Schizophrenic patients may become involved in risky situations because of poor judgment and misinterpretations of reality.

Victims of AOD Abuse

Some subgroups of trauma patients are of special note because they are in most cases the "innocent victims" of trauma events -- often the victims (and sometimes the repeated victims) of those whose AOD use has resulted in violent or irresponsible behavior. Up to 50 percent of those who are injured in motor vehicle crashes have no evidence of alcohol use at the time of injury even though alcohol or other drugs may have caused the injury (that is, for example, when the injury results from another person's drunk driving).

Many children and elderly persons, as well as spouses and significant others, sustain extensive injuries as the result of abuse in which AOD use frequently plays a role. Crime and random violence continue to claim many victims.

The medical and criminal justice costs to society are great. Any successful attempts to reduce AOD use and abuse among hospitalized trauma patients will also decrease the size of these special subgroups of trauma patients.

Alcohol and Other Drug Screening of Hospitalized Trauma Patients
Treatment Improvement Protocol (TIP) Series: 16

Chapter 3 -- Effects of Alcohol and Other Drugs on Trauma Patients

As discussed in the previous chapters, the acute and chronic use of alcohol and other drugs (AODs) is well documented as a primary risk factor in traumatic injury. Knowledge of an injured patient's AOD status can significantly improve medical treatment and injury outcomes. Ensuring that members of the trauma team have this important knowledge is a compelling reason for implementing an AOD screening program in the hospital or trauma center.

The first section of this chapter describes general effects of alcohol and other drugs on cognition and physiological functioning. The second section describes specific ways that acute and chronic substance abuse complicates the care of trauma patients from the moment of injury, during the acute and subacute phases of care in the hospital or trauma center, and throughout the trauma patient's rehabilitation and return to the community. The third section briefly examines how AOD use affects the recovery of patients with specific types of injury -- traumatic brain injury and spinal cord injury.

There is growing consensus that traumatic injury creates a "teachable moment" or a unique opportunity in the course of the addiction process, and that even minor interventions at this time -- such as a single visit by an empathic clinician to the patient's bedside -- can help the patient change his or her behavior. The final sections describe the important role that AOD interventions can play in traumatic injury, and the barriers to more widespread implementation of screening and assessment programs.

General Physiological and Cognitive Effects of AODs

In a discussion of effects on people chronically using alcohol and other drugs, both the immediate effects of ingesting a substance and the delayed effects of withdrawal from the substance should be considered. Immediate effects (impairment and intoxication) complicate the emergency assessment and diagnosis of trauma patients, whereas withdrawal may complicate early, subacute patient care.

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Immediate Effects

Mood altering drugs with addictive potential -- alcohol, sedative-hypnotics, opiates, and cocaine -- act primarily on the brain, either depressing or stimulating it. The resulting impairment increases the likelihood of injury. Impairment produces poor judgment, decreased reaction time, lowered vigilance, and decreased visual acuity. Impairment can also cause a sense of omnipotence and a willingness to engage in risky behaviors.

Acute effects of alcohol and other depressants include lowered blood pressure, depressed consciousness, respiratory depression, and analgesia (insensibility to pain). Sedative-hypnotics, such as benzodiazepines, are frequently prescribed to the elderly, in whom impairment can occur at low doses. In particular, the long-acting benzodiazepines such as diazepam (Valium) have been associated with falls (Ray et al., 1989).

Cocaine and other stimulants trigger the portion of the brain that responds to emergencies, and activates the "fight-or-flight" response. These effects include anxiety, agitation, paranoia, psychosis, and elevated vital signs. Other conditions that may result from use of cocaine and other stimulants include myocardial infarction (heart attack), weak heart muscle (cardiomyopathy), heart arrhythmia, cerebrovascular hemorrhage, seizures, vascular headache, and ischemic bowel (inadequate blood supply to the bowel).

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Cocaine and other stimulants cause central nervous system excitation and can impair judgment and perception. The initial primary effect of cocaine after ingestion is relatively brief excitation of the central nervous system. There is generalized muscular hyperactivity. The mood is elevated, and judgment and perception are impaired. Later, there is depression that can last for days. The period of maximum impairment after cocaine ingestion has not been determined.

Other drugs that may complicate diagnosis and treatment of trauma patients include inhalants, hallucinogens (such as lysergic acid diethylamide -- LSD), and phencyclidine (PCP). Hallucinogens cause perceptual and cognitive distortions and can have some stimulant properties. They may cause hypertension, tachycardia (rapid heart rate), and psychosis.

PCP is a drug with complex actions that can cause hallucinogenic, stimulant, depressant, and analgesic effects, depending on the size of the dose and the amount of time lapsed after taking the drug. Acute effects may include hypertension, seizures, violent behavior, and psychosis. Persons who have ingested PCP may be extremely difficult to restrain and may need physical or chemical restraints.

Some medications prescribed by physicians and over-the-counter medications may also present complicating factors for trauma patients, especially in combination with alcohol and other drugs. Many prescribed medications and over-the-counter drugs are marked with warnings not to drive

a motor vehicle or operate machinery while using the drug. People attempting suicide often ingest alcohol in combination with prescribed or over-the-counter medications.

Withdrawal

Persons who are dependent on alcohol and other drugs may experience withdrawal syndromes that can also complicate assessment and treatment of the injury. Signs and symptoms of alcohol withdrawal range from mild anxiety to delirium. The signs and symptoms of alcohol withdrawal include

- Tremors
- Anxiety
- Agitation
- Insomnia
- Fever
- Tachycardia (increased heart rate)
- Hypertension
- Diaphoresis (perspiration)
- Hallucinations
- Seizures
- Delirium.

Signs and symptoms of withdrawal from other sedative-hypnotics such as benzodiazepines are similar to those of alcohol. Whereas alcohol withdrawal symptoms are generally of immediate onset and dissipate within 72 hours, the emergence of sedative-hypnotic withdrawal symptoms depends on the drug ingested and how long it remains in the blood stream. (This is called "half-life" -- the time after ingestion when half of the drug has been excreted.) For example, withdrawal signs and symptoms may be apparent soon after cessation of a short-acting drug, such as alprazolam (Xanax), but may be delayed for several days after cessation of a long-acting drug, such as diazepam (Valium), which has a half-life of 80 to 100 hours in the elderly.

Withdrawal from cocaine may result in bradycardia (slowed heart rate) and lowered blood pressure, which are clinically relevant in trauma patients. However, most signs and symptoms of cocaine withdrawal are psychological. Craving, irritability, depression, and loss of interest in one's surroundings characterize cocaine withdrawal.

Opiate-dependent persons experience acute withdrawal symptoms that include anxiety, irritability, restlessness, yawning, elevated vital signs, diarrhea, abdominal cramps and occasional nausea and vomiting, body aches, and bone pain -- especially lower back pain. Withdrawal from heroin, which has a short half-life, begins several hours after ingestion.

Methadone and levo-alpha-acetyl-methadol (LAAM) are long-acting opioid substitutes that are used to treat opiate addiction. Symptoms of withdrawal from opioid substitutes appear a day or so after cessation of use, that is, a day or so after the patient is admitted for traumatic injury. A patient's use of methadone or LAAM can be documented once information about the clinic attended by the patient is obtained. To prevent withdrawal symptoms and/or maximize pain relief, methadone or LAAM can be given to hospitalized patients. Opioid substitutes are not

detected in routine urine drug screens, although questioning the patient usually elicits a history of use.

How AODs Complicate Assessment and Treatment of Trauma Patients

Acute Assessment and Treatment

Continuous assessment of the severity and extent of a person's injury from the time emergency service workers arrive at the scene to the patient's arrival at the emergency department or trauma center is a fundamental aspect of trauma medicine. As described above, AODs have potent effects on the central nervous system, the cardiovascular system, and the respiratory system, among others, that may complicate and lengthen the evaluation of the nature, extent, and severity of the injury. In addition, the direct effects of the ingested substances may increase the severity of the injury. For example, the injured brain is more vulnerable to increased temperatures, lack of oxygen, low blood pressure, and low clotting factors -- all of which result from alcohol intoxication.

Continuous assessment of the severity and extent of a person's injury from the time emergency service workers arrive at the scene to the patient's arrival at the emergency department or trauma center is a fundamental aspect of trauma medicine.

Alcohol and other drugs can decrease the respiration rate, exacerbating the effects of a lack of oxygen to organs such as the brain and to other tissues. Patients under the influence of cocaine, hallucinogens, or PCP may require induced chemical paralysis to enable endotracheal intubation, a procedure which permits a patient to breathe. AODs can alter blood pressure and rate and rhythm of the pulse and can increase bleeding, resulting in increased risk of hemorrhagic shock.

Patients with traumatic injuries often present with an altered mental state, ranging from agitation and confusion to coma. The effects of AODs can mimic the symptoms of traumatic brain injury. Signs and symptoms of brain injury include behavior changes, sleepiness, and inappropriate language. Patients with severe head injuries who have a positive blood alcohol concentration (BAC) or have been using other drugs present diagnostic problems. One study found a lower level of consciousness and a longer period of coma among patients with positive BACs, which could not be explained by other factors (Edna, 1982).

The effects of AODs can mimic the symptoms of traumatic brain injury. Signs and symptoms of brain injury include behavior changes, sleepiness, and inappropriate language.

Accurate assessment of many injuries depends on whether the patient can feel tenderness or pain in response to the physician's touch. AODs can raise the level of the pain threshold, thus decreasing a person's ability to feel pain. For example, an intoxicated patient with a cervical spine injury may report no tenderness in the neck, and an individual with an internal injury may not feel pain. The evaluation of blunt injury to the abdomen is of particular concern, because it is

much harder to evaluate in an intoxicated patient. Alcohol has a synergistic effect with a number of medications used for pain and sedation; these drugs acting together with alcohol can cause decreased blood pressure, slow respiration, or even apnea (temporary cessation of breathing).

Knowledge of a patient's AOD status may influence an anesthesiologist's choice of an anesthetic agent or its dose. Frequent, heavy use of alcohol enhances the ability of the liver to metabolize alcohol and other drugs. Thus, some anesthetics and other medications are cleared more quickly by the liver and the standard dose may give less than the expected effect. Chronic heavy alcohol use may also create a reverse phenomenon: damaged liver tissue may result in a standard dose having a greater and more prolonged effect.

Anesthetic management of cocaine users can also be difficult. Chronic cocaine users sometimes do not respond in typical ways to anesthetics. They may become hypotensive (i.e., exhibit low blood pressure) when given increased amounts. In cases that are not immediately life threatening, a surgeon may decide to postpone an operation for several hours until the effects of an ingested substance have diminished or the risk of withdrawal symptoms has passed and the patient can undergo surgery with fewer chances of complications.

There is no antidote in clinical use that can be administered to the intoxicated trauma patient to reverse or alleviate the effects of alcohol. Knowledge of a patient's BAC can help predict when effects of intoxication will abate, since the rate of alcohol metabolism is fairly consistent at 15 mg/dl per hour. (Persons maximally tolerant to alcohol can metabolize it at a rate of 25 to 30 mg/dl per hour.) Thus, if an injured person's BAC is 100 mg/dl, after 2 hours it will decrease to around 60 to 70 mg/dl.

Withdrawal

Symptoms of AOD withdrawal can mimic or overlap with symptoms of injury, confusing the immediate clinical picture. For example, an injured person with a fever who is combative may be thought to have an infection associated with the injury, when in fact he or she is experiencing withdrawal. Patients experiencing alcohol withdrawal frequently become agitated, which is highly dangerous in some trauma situations. For example, if they have a spinal cord injury, immobilization is necessary to avoid extending the injury. Sometimes even the amount of motion allowed by restraints is dangerous, and restraining these patients' extremities often makes the withdrawal agitation worse. Agitated patients often attempt to pull out intravenous fluid lines or the endotracheal tube, which is necessary for breathing. Because of the mental impairment caused by withdrawal, patients in such cases do not realize they are further injuring themselves.

Unrecognized withdrawal states can lead to unnecessary and expensive testing, medical mismanagement, and prolonged hospital stays. Untreated alcohol withdrawal can lead to delirium tremens, a dangerous and sometimes fatal condition -- especially after surgery -- that can be prevented if early withdrawal signs are recognized.

Patients experiencing alcohol withdrawal frequently become agitated, which is highly dangerous in some injury situations -- for example, when immobilization is necessary.

Diagnostic Tests

Because patients who have ingested alcohol or other drugs are more difficult to assess, emergency department personnel may request additional diagnostic tests to clarify the clinical picture. A recent study of more than 2,200 trauma patients showed that intoxicated patients were significantly more likely than nonintoxicated patients with the same severity of injury to undergo a larger array of diagnostic and therapeutic procedures in the emergency department (Jurkovich et al., 1992). The patients in the study were significantly more likely to require endotracheal intubation. They required more procedures, such as intracranial pressure monitoring, peritoneal lavage, and CT scans (see Appendix B, Glossary of Medical Terms), to diagnose and determine the extent of their injuries. Intoxicated patients were much more likely than nonintoxicated patients to be admitted to the hospital simply for observation.

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Subacute Treatment and Rehabilitation

General Effects

AOD use and dependence typically make it difficult for patients to participate in the rehabilitation process. Some preliminary studies of trauma patients have shown that substance-dependent patients experience a more complicated medical course of inpatient treatment and longer hospitalizations (Mishkin and Sparadeo, 1991; Sparadeo and Gill, 1989). In one study, chronic alcohol users had significantly more complications during recovery, particularly infections such as pneumonia and postoperative infections at the site of penetrating injuries (Rivara et al., 1993a).

Management of pain during injury recovery presents another challenge for care providers. For example, opiate users generally require higher doses of pain medication to achieve analgesic effects equivalent to those of lower doses in other patients. (An inordinate need for pain medications is a possible sign of an opiate-addicted person.) Traditional pain control practices have tended toward undermedication of patients. Many healthcare clinicians view pain management as burdensome and have negative attitudes about patients who complain about their pain. Persons with an opiate addiction who are in pain can badly affect staff morale unless staff receive training about the special needs of these patients.

AOD-dependent patients, in particular injection drug users, have a higher risk of infections such as HIV and tuberculosis. Acute and chronic use of alcohol lowers the immune response leading to greater likelihood of posttraumatic infection. In addition, AOD-dependent persons of all socioeconomic backgrounds often have poor nutritional status, which also slows the healing process.

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also slows the healing process.

Patients with active AOD problems may have a higher incidence of certain psychiatric conditions, such as anxiety disorders or affective disorders. It has been found that more than half of those who abuse AODs have experienced psychiatric symptoms significant enough to fulfill diagnostic criteria for a psychiatric disorder (Regier et al., 1990; Ross et al., 1988), although many of these symptoms may be related to AOD use and may not represent an independent condition. Conditions such as depression and anxiety may complicate recovery from traumatic injury. The probability of behavior problems during physical rehabilitation increases if patients had such problems before their injury. A history of AOD use is a predictor of behavior problems. Patients with AOD problems often progress haltingly in physical rehabilitation; their behavior may alienate treatment staff.

As noted by Kraus (1992), alcohol use has historically been accepted and even inadvertently encouraged among patients in some rehabilitation settings, especially patients with spinal cord injuries resulting in paralysis. Some physicians have been known to prescribe alcohol to hospitalized patients. Families and friends may "enable" injured patients to continue AOD abuse after discharge because of the stereotype that persons with disabilities are prone to depression. (Enabling is a term used in the AOD treatment field to describe attitudes and behaviors of others that give the individual with an AOD problem either direct or indirect permission to continue AOD abuse and dependence.) Courts may be excessively lenient when disabled individuals are charged with speeding or driving while intoxicated. Such attitudes are obstacles preventing injured and disabled patients from receiving needed alcohol and other drug abuse treatment.

Effects on Patients With Traumatic Brain Injury

Head injury survivors may seek to demonstrate their full recovery by returning to preinjury levels of alcohol use, or may pursue a preinjury "comfort level" of intoxication to prevent unwanted withdrawal symptoms. One preliminary study showed that more than 50 percent of head injury survivors resumed drinking to preinjury levels within 1 year (Sparadeo and Gill, 1988). Some brain injuries are associated with decreases in certain brain chemicals, and a patient's use of alcohol may be an attempt to compensate for this deficiency. However, because of the brain injury, these patients may experience stronger effects from smaller amounts of alcohol than they did before the injury. Resumption of use may cause dramatic worsening of memory or other cognitive functions.

The National Head Injury Foundation has stated that any level of AOD use is contraindicated in all patients with traumatic brain injury, not only because AOD use is a risk factor for reinjury, but also because it significantly exacerbates cognitive deficits in these patients.

Families and friends may "enable" injured patients to continue AOD abuse after discharge because of the stereotype that persons with disabilities are prone to depression.

Effects on Patients With Spinal Cord Injuries

Patients with spinal cord injuries that result in paralysis must follow fairly rigid daily self-care schedules and routines to ensure that other complications do not result from their injuries. For example, patients who have lost bladder function must catheterize themselves (or be catheterized) on a regular schedule if they are to avoid infection and kidney damage, a problem that causes significant morbidity and mortality. In addition, persons in wheelchairs must shift their weight at intervals to avoid the serious problem of decubitus ulcers (bedsores, pressure sores) and subsequent infection. Use of AODs can disrupt such a schedule, for example, by causing forgetfulness or fatigue or by producing an "I don't care" attitude in the patient. Failure to follow self-care schedules can have a serious impact on the health of these patients.

Many patients who have sustained spinal cord injuries drive, and the risk of reinjury from alcohol use is ever present. Many of these patients are prescribed antispasmodic medications that may interact with AODs, producing additional impairment. Although spinal-cord-injured patients may have experienced severe loss in terms of paralysis, reinjury could involve head trauma, resulting in an even more debilitating loss. The impacts on patients' family members and on the victims of crashes caused by the patient are incalculable. In light of these considerations, the use of alcohol and other drugs is contraindicated in patients with spinal cord injuries.

Knowledge of a patient's AOD status can be essential in making clinical decisions throughout the course of treatment for the injury.

In summary, AOD use can affect the acute, subacute, and long-term management of trauma patients. Knowledge of a patient's AOD status can be essential in making clinical decisions throughout the course of treatment for the injury.

The Importance of AOD Interventions in Traumatic Injury

The "Teachable Moment"

In a few hospitals, an AOD treatment specialist is part of the interdisciplinary inpatient team, both in the subacute phase and during rehabilitation. The AOD treatment specialist works with the patient and the family to begin the AOD intervention and to set the stage for later AOD treatment and educates other team members about the addiction process. Some injury rehabilitation programs provide specialized AOD use treatment for patients with physical and cognitive deficits.

There is extensive evidence and wide agreement in the field that traumatic injury creates a "teachable moment" or a unique opportunity in the course of the addiction process (Gentilello et al., 1988; Reyna et al., 1985; Soderstrom and Cowley, 1987). This teachable moment happens when a patient makes a connection in his or her mind that the traumatic injury is a direct result of AOD use. Those who are able to make the connection may be more open to accepting AOD education or treatment, greatly reducing their chances for reinjury and improving their course of recovery from the injury.

As time after injury elapses, many clinicians believe that opportunities diminish for helping patients make the connection between their drinking and the injury. For example, a patient with an AOD use disorder who is told at hospital discharge several weeks after the crash not to drink and drive may be less likely to make the connection -- and therefore less likely to seek AOD treatment -- than a patient who has had even a brief educational intervention early in the inpatient stay.

Discharge and aftercare planning and linkages of services for trauma patients with AOD problems is especially important. Rehabilitation should continue to focus not only on the injury but on AOD use. The hospital or inpatient rehabilitation setting is a controlled environment where patients recovering from traumatic injury are generally prevented from resuming use of alcohol or other drugs. Many patients who leave such a setting are in danger of relapsing, greatly increasing their risk for reinjury and hampering their recovery from the injury. Therefore it is important that AOD treatment specialists on the rehabilitation team work with the patient and family to help the patient continue the AOD recovery process after discharge.

There is wide agreement in the field that traumatic injury creates a "teachable moment" or a unique opportunity in the course of the addiction process. This moment or opportunity happens when patients make the connection that the traumatic injury is a direct result of AOD use.

The following case helps illustrate the importance of AOD interventions with these patients.

Case Example

Mr. B, a 25-year-old single male, was brought to the emergency department by his friends after he was severely beaten outside a bar late at night. His BAC was above 200 mg/dl. Exploratory surgery revealed a lacerated liver, which was sutured with no postoperative complications. After 8 days in the hospital, Mr. B. was discharged. Although the treating physician knew about Mr. B's high BAC on admission and about how Mr. B had sustained the injury, no attempt was made with either him or his family to address his possible AOD use problems.

Eight months later, Mr. B lost control of his car and crashed into a wall. He was brought to the same emergency room, where it was found that his BAC was again above 200 mg/dl. He sustained a broken neck in the crash and extensive internal injuries. This time, the surgeon sought a consultation with an AOD specialist, and Mr. B's pattern of AOD abuse and dependence became clear. During his month-long stay in the acute care unit, Mr. B, who had permanently lost the use of his legs, was offered AOD counseling and treatment. Although he refused to participate in AOD treatment, his family was more receptive, and Mr. B's father entered AOD treatment.

After a month in the hospital, Mr. B was discharged from acute care to a physical rehabilitation facility in the same city. The program included an AOD treatment component, and Mr. B, who had become more receptive to intervention since his father's treatment, successfully completed the program. He has maintained sobriety for 2 years, which he reports has helped him cope with his paralysis and reenter the community and the workforce.

It is impossible to say whether an AOD intervention during Mr. B's first hospitalization would have prevented his reinjury and the extensive emotional and financial costs to himself, his family, and society. However, addressing a trauma patient's possible AOD use problems -- a known risk factor for traumatic injury -- increasingly appears to many clinicians to be an important part of good medical practice.

Addressing a trauma patient's possible AOD use problems -- a known risk factor for traumatic injury -- increasingly appears to many clinicians to be an important part of good medical practice.

Barriers and Opportunities

Many reasons have been given for not routinely screening for AOD use among hospitalized trauma patients. In two national surveys of trauma centers assessing clinical practices concerning alcohol (Soderstrom and Cowley, 1987; Soderstrom et al., 1994), it was noted that respondents from the centers did not obtain routine BACs because they did not believe that BACs were clinically important. Other clinicians have also advanced this argument, pointing out that acute care of persons with life-threatening injuries often proceeds according to certain fixed protocols, whether or not the patient is intoxicated. However, as discussed above, knowledge of a patient's AOD status can affect decisions in the emergency department, as well as longer term care and treatment planning.

Many medical personnel in trauma centers and hospitals often assume that the majority of intoxicated persons who are injured are social drinkers who have simply drunk too much on an isolated occasion. Significant evidence has accumulated that this is not the case and that injuries resulting from alcohol use are indicative of chronic use or alcoholism (Arnstein-Kerslake and Peck, 1985; Gentilello et al., 1988; Waller, 1967; Waller, 1972).

Many medical personnel in trauma centers and hospitals often incorrectly assume that the majority of intoxicated persons who are injured are social drinkers who have simply drunk too much on an isolated occasion.

Other possible explanations for not implementing AOD screening involve physicians' attitudes. As Lowenstein and colleagues noted (1990), several recent surveys have found that only a minority of primary healthcare providers feel successful and competent in treating alcoholic patients. In a survey of more than 1,000 emergency medical specialists, Chang and colleagues (1992) noted interesting responses concerning alcoholism. While physicians indicated that "alcoholism is a treatable disease," they also acknowledged that "alcoholics are difficult to treat." There is a need for more physician education about AOD abuse treatment.

Unfortunately, little attention has been given to the subject, either in medical school or during residency training (Geller et al., 1989). As described more fully in Chapter 4, the American Medical Association has established policy guidelines for primary care physicians in treating substance-abusing patients (American Medical Association, 1979). At a minimum, physicians

should be able to assess and diagnose AOD use disorders and to refer patients to appropriate sources of AOD treatment.

Gentilello and colleagues (1988) noted the "pessimism" that pervades members of the medical profession in regard to AOD treatment, which they speculated is related to the fact that physicians are primarily exposed to active alcoholics who "refuse advice regarding sobriety and seem beyond the call of reason." These patients are often hostile, manipulative, or combative, and physicians respond with pessimism, avoidance, ridicule, disdain, and angry helplessness.

However, as Lowenstein and associates have pointed out (1990), pessimism on the part of emergency department physicians is not warranted. Studies in primary care settings have shown that the majority of alcoholic patients welcome offers of help for their AOD problem. In one trauma center, 17 of 19 patients with major injuries and high BACs agreed to immediate admission to an alcohol treatment program (Gentilello et al., 1988).

Emergency department physicians and others who treat hospitalized trauma patients can benefit from further education about the effectiveness of screening and the success of AOD abuse treatment. Referrals to appropriate types and levels of AOD care can greatly improve outcomes for many patients. When healthcare providers encounter patients who have successfully completed AOD treatment as a result of screening programs, more positive attitudes about the "treatability" of many patients may change.

When healthcare providers encounter patients who have successfully completed AOD treatment as a result of screening programs, attitudes about "treatability" may change.

The CALDATA Study

As this Treatment Improvement Protocol was being prepared for publication, results of an important long-term study on the effectiveness of AOD abuse treatment were published (California Department of Alcohol and Drug Programs, 1994). The 2-year CALDATA study followed a rigorous probability sample of the nearly 150,000 persons who received AOD abuse treatment in California in 1992. The sample included patients in a spectrum of treatment modalities. The cost of treating the approximately 150,000 participants in 1992 was $209 million, while the benefits received during treatment and in the first year afterwards were worth approximately $1.5 billion. Thus, for every dollar spent on treatment, $7.14 in future costs were saved. These savings were largely in relation to reductions in criminal activity and in the number of hospitalizations for health problems. For a smaller sample followed through the second year, results have indicated that projected cumulative lifetime benefits of treatment will be substantially higher than the shorter term benefits.

The CALDATA study found that, from before to after treatment, criminal activity declined by two-thirds and hospitalizations by one-third. Declines of about two-fifths also occurred in the use of alcohol and other drugs from before to after treatment. Treatment for major stimulant drugs (crack cocaine, powdered cocaine, and methamphetamine) that were all in widespread use was found to be just as effective as treatment for alcohol problems and somewhat more effective than

treatment for heroin problems. No differences in treatment effectiveness were found by gender, age, or ethnic group.

Specialized Treatment Models

Models are lacking for AOD abuse treatment programs for patients recovering from traumatic brain injury. However, there is increasing recognition of the need for integrated programs to provide brain-injured patients with cognitive and physical rehabilitation as well as AOD use treatment. For example, in Rhode Island, there are about 75 to 100 new cases per year of brain-injured patients who need this dual treatment (personal communication, F. Sparadeo, Ph.D., Rhode Island Hospital Department of Psychiatry, 1994). Such programs should address patients' cognitive, motor, and personality deficits. Appropriate and effective ways of providing such treatment should be the subject of future research. A regional approach to treatment that creates facilities for use in several areas of the country may be more cost-efficient and benefit more people than State or local creation of such facilities.

Similarly, no well-defined approaches to AOD treatment exist for patients with spinal cord injuries. A problem in AOD treatment compliance for these patients is the issue of empowerment. When they are forbidden to use AODs, they may perceive that their power to choose is being taken away, which may seem to them a further loss of their already eroded powers. The AOD treatment provider should create a partnership with the patient in which both collaborate to achieve treatment goals. An educational approach that places AOD use treatment within the rehabilitation framework has been suggested (Kraus, 1992).

Alcohol and Other Drug Screening of Hospitalized Trauma Patients
Treatment Improvement Protocol (TIP) Series: 16

Chapter 4 -- Screening and Assessment

In this chapter, the processes of screening and assessment as they might be implemented in a Level 1 trauma center or community hospital are outlined. The consensus panel's recommendations about who should be screened and when patients should be screened are presented, and issues that the panel considered in making these recommendations are discussed.

Various laboratory tests for detecting alcohol and other drugs (AODs) in blood and urine are described. Brief questionnaires and other screening questions should be used to supplement results of laboratory tests. This chapter reviews several brief instruments that institutions may consider for use in an AOD screening program.

In some cases, a biopsychosocial AOD assessment of the trauma patient is appropriate, if the patient consents. The chapter offers guidelines for conducting an AOD assessment, including suggestions about which patients to assess and who should conduct the assessment. Components of an effective AOD assessment are described.

Trauma patients are a unique population. Compared with other persons with substance dependence, persons injured in substance-related mishaps may have reached a point in their lives where they may be likely to reflect on the relationship between their addiction and its consequences. They may be motivated and ready for treatment. The opportunity for intervention with these individuals should not be overlooked. It is beyond the scope of this Treatment Improvement Protocol (TIP) to describe the many modes of AOD treatment. However, this chapter includes a discussion of brief AOD interventions that can be conducted in a hospital setting. Brief interventions have been shown to be surprisingly effective in motivating patients to reduce AOD use and engaging them in treatment.

Level 1 Trauma: Screening and Assessment

Studies of samples of hospitalized trauma patients have shown that from 20 to 86 percent test positive for alcohol or other drugs (Sloan et al., 1989). For example, analysis of data from 4,063 trauma patients in six regional trauma centers in the United States found that 40.2 percent had a positive blood alcohol concentration (BAC) on admission (Soderstrom et al., 1992). Toxicology screening of blood and urine in 936 patients at one university trauma center found 65 percent were positive for one or more drugs (Bailey, 1990). And a third study of 177 patients with a diagnosis of multiple trauma found that 72 percent had positive toxicology screens for AODs (Clark and Harchelroad, 1991).

Screening for alcohol and other drug use is a critical component of hospital management of the patient with traumatic injuries. As described in Chapter 3, screening has immediate benefits for medical management of trauma patients; for example, results of screening tests help caregivers understand the cause of a patient's altered mental status. In addition, screening is the basis for identifying persons at risk of reinjury because of underlying substance use problems.

Toxicology screening of blood and urine in 936 patients at one university trauma center found 65 percent were positive for one or more drugs.

Definitions and Overview

To understand how the screening process can function effectively, some basic definitions are helpful.

Screening is the application of a simple test to a group of persons for the purpose of identifying a subgroup with a certain condition. In many communities, various healthcare organizations sponsor programs to screen for particular illnesses, including breast and colorectal cancer and hypertension, among at-risk groups.

Screening is the application of a simple test to a group of persons for the purpose of identifying a subgroup with a certain condition.

The purpose of screening hospitalized trauma patients for AOD use is not to place every patient in AOD treatment, but to provide information necessary for appropriate medical management of trauma patients, both in the acute phase of care and in rehabilitation. Another important purpose of screening in this patient group is to identify those whose use of alcohol and other drugs may have contributed to their injuries. Those who may have underlying substance abuse or dependence or who may be at risk of developing these disorders can then be referred to appropriate treatment.

Different types of AOD screening tools are used; most frequently these are laboratory tests (usually of the blood or urine) or brief oral or written questionnaires. Self-report questionnaires and short structured interviews are also used.

The consensus panel that developed this TIP recommends administration of laboratory screening tests such as blood alcohol concentrations and urine drug screens as the basis of an AOD screening program to be implemented among hospitalized trauma patients. However, the panel agreed that laboratory tests alone are not adequate to screen for underlying substance use disorders. Laboratory screening tests simply detect the presence or absence of a substance in body fluids and thus indicate recent use. Effective screening depends on interpretation of these results with other information about frequency and pattern of AOD use. Simple screening instruments -- either self-administered questionnaires or a set of questions to ask the patient -- play an important role in the AOD screening process and provide useful information for helping

clinicians interpret the results of laboratory screening tests and make decisions about referral for AOD assessment.

The Institute of Medicine (1990) has recommended that *questions about alcohol use* be included among routine lifestyle assessment questions asked of all persons presenting for care in a medical setting. Valuable details about a patient's possible AOD problems can be gained from routine behavioral questions about weight, diet, exercise, and tobacco use and direct observations of the patient by healthcare staff. In addition, patients' charts can be scanned for evidence of a history of substance use problems. Family members may also provide information about a patient's substance use problems, but the family must be approached in a manner that protects the patient's confidentiality (see Chapter 6).

All screening tests should be optimized for sensitivity. A test's *sensitivity* indicates how well it is able to detect the target condition in a given population when it is present. As an instrument's sensitivity increases, so do the number of false positives it detects. The test should, to the best extent possible, be used to identify all (or the vast majority) of those with the defined condition (AOD use). It is understood that the philosophy of casting a wide net will inevitably identify a number of false positives.

The *specificity* of a test refers to its ability to identify persons who do not have the disorder. Both sensitivity and specificity should be considered in selecting or developing a screening instrument.

Positive screening results should be addressed. The patient's attending physician should determine the most appropriate way to address the results. In many cases, an AOD assessment is appropriate if the patient consents. *AOD assessment* is the process by which the results of screening tests are confirmed or refuted. Assessment is a comprehensive biopsychosocial process incorporating a range of evaluation procedures and techniques. More specific elements of assessment are discussed later in this chapter.

The *specificity* of a test refers to its ability to identify persons who do not have the disorder.

The AOD assessment process eliminates false positive screening results. Once the positive results are confirmed, the assessment then determines the severity of the AOD problem. The information gained in the AOD assessment will be used to provide data to help determine appropriate patient management. As described below, the patient has an active role in the AOD assessment process, both in appraising the severity of the problem and in planning treatment.

Who Should Be Screened?

Alcohol

The panel recommends that **BACs be obtained routinely for all hospitalized trauma patients aged 14 and over at the time of admission to the emergency room or trauma center.** This procedure is needed because of the high prevalence of AOD use and dependence in this

population and the associated higher risk of injury. BACs for patients under age 14 may be obtained if there is suspicion of alcohol use. Clinical decisions about screening patients under age 14 should take into account local patterns of alcohol use. Many parents of younger children may object to such screening.

Obtaining a BAC improves differential diagnosis and immediate patient management by indicating the need for further diagnostic testing in regard to the injury, or the potential need for alcohol withdrawal management. The BAC is also an effective screening tool for identifying patients who need further assessment to determine the need for counseling regarding their drinking.

The panel recommends that **patients with BACs above 20 mg/dl (.02 percent) be considered for further AOD assessment.**

Other Drugs

The panel recommends that **urine drug screens also be obtained routinely from all hospitalized trauma patients aged 14 and over at the time of admission**. Similarly, screens should be considered for persons under age 14, if there is suspicion of use. Results may be helpful in making a differential diagnosis, managing patients with withdrawal syndromes, and accurately interpreting vital signs. Results of drug screens may help in understanding other effects that may complicate the clinical picture, such as the use of multiple prescription drugs by elderly persons. Urine drug screens can also be effective in identifying patients who need further assessment to determine if there is a need for counseling or referral for treatment for a drug use disorder.

Urine drug screens can determine the presence of sedative-hypnotics, cocaine, opiates, and cannabis. However, additional tests, such as those for phencyclidine (PCP), methadone, and lysergic acid diethylamide (LSD), may be done, depending on the patient's presentation and on the clinician's knowledge of drug use patterns in the community.

The use of these screens should occur in a context of heightened sensitivity about the need to protect the patient's privacy and maintain confidentiality. This issue is discussed in Chapter 6 of this TIP.

Many issues must be considered when screening and assessing adolescents for alcohol and other drug use. Another Treatment Improvement Protocol in this series, *Screening and Assessment of Alcohol- and Other Drug-Abusing Adolescents*, provides detailed information about conducting screening and assessment of adolescents; several instruments specifically designed for use with this patient group are reviewed.

The panel recommends that blood alcohol concentrations and urine drug screens be obtained routinely for all hospitalized trauma patients aged 14 and over at the time of admission to the emergency room or trauma center.

Patterns of Drug Use

Many hospitalized trauma patients have used several drugs at the same time. Studies have shown that one-third or more of patients with traumatic injuries who test positive for alcohol have at least one other drug in their systems (Clark and Harchelroad, 1991). The presence of alcohol, therefore, should be a red flag for the presence of other drugs. In persons who test negative for alcohol, combinations of other drugs are frequently found (Brookoff et al., 1993; Soderstrom et al., 1992).

The issue of polydrug use provides further reason for AOD screening of trauma patients. As discussed in the previous chapter, several organ systems can be involved in a single traumatic injury. That fact, coupled with the high incidence of polydrug use, compounds the complexity of treating the trauma patient. The information gained from AOD screening can be an important aid in assessing injury and how it should be treated.

When to Screen

In trauma centers, where procedures are prescribed by strict protocols, and blood and urine samples are drawn routinely from all patients, it is relatively simple to fit BAC and urine drug screens into existing procedures. This use of screens may be more difficult in a community emergency department, where patients with altered mental status may be the only ones likely to be screened, and the decision to screen is left to the individual physician.

The total amount of time spent in the emergency department by a patient can be as short as several minutes. Many patients are critically injured, and any treatment delay could mean permanent disability or death; therefore trauma treatment procedures in the emergency department must be as brief as possible. If chemical screening is to be done for AODs, it must be part of the standard treatment protocol, because of the short period that the trauma patient may be in the emergency department.

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The laboratory process of carrying out BACs and urine drug screens can usually be completed in less than an hour, although hospital procedures can delay the reporting of test results for as long as 24 hours. Timely reporting of results is a key factor in an effective screening program. As discussed in Chapter 3, elevated blood alcohol levels or evidence of other drugs of abuse indicate patients who may develop withdrawal syndromes and those who may require adjustments of pain medications and anesthetics. Trauma nurses are often very familiar with a patient's blood alcohol level and use that information to make decisions about timing of discretionary medications such as morphine or meperidine (Demerol). When a patient comes back from the operating room, this information affects management since nurses are adjusting the dosage of various drugs minute to minute.

A large number of patients admitted to the hospital will be short-stay patients, discharged the day after they are admitted. So that these patients are not overlooked, it is important that the results of their BACs and urine drug screens be available at least by early in the morning on the day after their admission so that some intervention, however brief, can be attempted if deemed necessary. It is often helpful to designate a staff person to be responsible for monitoring BACs and urine toxicologies of newly admitted patients. This monitor could be, for example, the trauma physician, a trauma nurse, a social worker, the trauma nurse coordinator, or an AOD counselor.

The Case for Universal Screening

As stated at the beginning of this chapter, the TIP consensus panel agreed that all hospitalized trauma patients aged 14 and over should be screened for AOD use and that screening of younger patients should be done if use were suspected. Screening should be performed for purposes of medical and nursing management and for gathering information regarding the need for future AOD intervention. Deciding to screen some patients and not others opens the door for cultural, racial, gender, and age biases.

A simple story illustrates this point. A mother, age 40, and her 18-year-old son were admitted to a hospital trauma center in a midwestern city after an automobile crash. The son, because of his age, was screened for blood alcohol. That test result was negative. The mother, a well-dressed woman, was not screened. Three days later she began showing signs of alcohol withdrawal.

Studies show that it is impossible to tell from a visual examination which patients are intoxicated (Perper et al., 1986; Rutherford, 1977). Sometimes patients are not responsive and do not give the expected behavior cues, and it is difficult even for people experienced in the trauma setting to make accurate judgments. Even a physical examination by a neurologist can fail to identify intoxication. The well-dressed, middle-class, 40-year-old woman was not identified as an alcohol user because of her physical appearance and possibly because of gender stereotypes. Intoxication can be overestimated as well as underestimated. For example, a patient judged to be intoxicated may be exhibiting the effects of oxygen deprivation.

If screening is universal and a part of the trauma center or hospital routine, problems caused by discretionary screening will be avoided. If screening is part of the standard treatment protocol, the patient is implying consent to screening by coming for treatment.

Deciding to screen some patients and not others opens the door for cultural, racial, gender, and age biases.

Description of Laboratory Screening Tests

Several laboratory tests are available for determining the presence of alcohol and other drugs in body fluids such as urine and blood. The level of the substance in the body, especially the level of alcohol, indicates the degree of impairment at the time of the injury. Laboratory tests measure recent substance use rather than chronic use or dependence. There is no conclusive test to

determine substance dependence that is similar to the blood sugar measurement to diagnose diabetes or the blood pressure measurement to identify hypertension.

Researchers and clinicians have developed a variety of brief screening tools, such as self-administered questionnaires and short sets of questions that focus on the quantity and frequency of substance use. The results of these nonlaboratory screening tools can help clinicians determine whether a patient is likely to be dependent on AODs and should be referred for a more comprehensive assessment. Because research has focused more on the use of alcohol than on the use of other drugs, many of these tools screen for alcohol dependence. However, some tools, such as the CAGE questionnaire, provided later in this chapter, can be adapted to screen for dependence on drugs other than alcohol.

The following sections describe laboratory and nonlaboratory screening tests for alcohol and other drugs.

Blood Alcohol Concentration Determinations

There are a variety of methods for determining alcohol concentrations in the body. In the busy environment of the trauma center or emergency department, the simplest means is to use blood, since drawing blood is already a part of protocols at trauma centers and some hospitals. Other options exist, such as conducting a saliva test or using the Breathalyzer. However, the panel recommends the use of BACs.

Blood alcohol concentrations are measured in milligrams (mg) of alcohol per deciliter (dl) of blood. This figure is converted to a percentage. One hundred mg/dl equals 100 mg percent or 0.1 percent. Thus, a BAC of .1 mg percent is equivalent to a concentration in blood of 100 mg of alcohol per deciliter of blood.

While the level of BACs will vary greatly, most patients admitted to trauma centers have BACs well over the legal limit that defines drunk driving in most States (that is, 100 mg/dl) and well over the amount known to produce impairment (see below). For the 5-year period from July 1988 through December 1993, the average BAC for patients admitted to the University of Maryland's Shock Trauma Center among both men and women 21 to 34 years of age was 180 mg/dl (Soderstrom et al., 1994b). Further analysis of data from all 18,000 patients tested during that period indicated that the mean BAC was 180 mg/dl. Similarly, among nearly 2,300 trauma patients tested at the trauma center at Seattle's Harborview Medical Center over an 18-month period, the mean BAC for those testing positive was 180 mg/dl (Jurkovich et al., 1992). Both of these studies involved Level 1 trauma centers, where the most severely injured patients are transported. These patients are likely to have higher levels of impairment from alcohol. However, such elevated BACs are seen commonly in trauma patients in community hospitals.

The amount of alcohol that defines drunk driving in most States is 100 mg/dl (or .1 percent), which is well above the amount known to produce impairment (about 50 mg/dl).

A level of 100 mg/dl is usually achieved when a person weighing 70 kilograms drinks three to four drinks per hour. A standard drink is defined as 12 ounces of beer, 1 ounce of liquor or distilled spirits, or 4 ounces of wine. However, there is some variability because of individual differences in alcohol metabolism, which varies because of such factors as stomach contents (food ingested), speed of alcohol consumption, gender, age, and body size.

Impairment from alcohol consumption has been shown to occur at the level of 50 mg/dl. In women and elderly persons, impairment may occur at lower levels. Most people demonstrate impaired driving at levels of 50 to 70. The probability that an auto crash will occur begins to rise when the driver's BAC exceeds 40 mg/dl, and rises dramatically when it reaches 100 mg/dl (American Medical Association, Council on Scientific Affairs, 1986). A level of 150 or higher without noticeable intoxication indicates a high degree of tolerance to alcohol.

Many patients with blood alcohol concentrations higher than 200 mg/dl will be found to have a diagnosable alcohol problem upon further screening and assessment. Such patients are likely to have chronic medical problems because of alcohol use -- problems that will complicate the course of treatment for their injuries (Gentilello et al., 1993). Levels above 400 mg/dl can be lethal, although this level for lethality varies from person to person.

Alcohol use by trauma patients may be underestimated because BACs are determined after the patient has been transported from the site of the injury. Most persons metabolize alcohol at a rate of 15 to 20 mg per hour. Thus, the longer the time between injury and testing, the lower the BAC. Many patients must be extricated from their vehicles, and many are transported relatively long distances, allowing for metabolism of a significant amount of alcohol. Frequently at the scene of the injury and during transport, patients are given intravenous fluids that dilute the blood and lower BAC results. Vomiting may eliminate alcohol from the stomach before it reaches the blood.

Many patients with blood alcohol concentrations higher than 200 mg/dl will be found to have a diagnosable alcohol problem upon further screening and assessment.

A single elevated blood alcohol level does not provide information about the regularity and severity of alcohol abuse, unless the counts are extremely high. From the screening perspective, the BAC is just one factor that must be taken into consideration when determining the severity of the problem and making an appropriate referral for care.

Urine Drug Screening

As discussed above, trauma patients at Level 1 trauma centers routinely have urine specimens sent for analysis for purposes other than AOD screening. Therefore, in this setting, urine screening for the presence of drugs can be done with a minimal disruption of trauma center activity. At community hospitals where urine specimens may not be routinely analyzed, emergency department physicians must order them. Not all hospitals have the facilities to perform urine drug screens, but outside laboratories can be used.

In the laboratory, a number of different tests are performed to detect the presence of various drugs. Different test procedures have the capability of detecting different drugs. Testing capabilities differ in hospital laboratories, because of the available instrumentation and the training of laboratory personnel.

There is no single set of test procedures that constitutes a standard urine drug screen. The range of the screening test will vary from locale to locale and should be defined within each institution according to its needs and capabilities. Institutions should design screening tests to detect drugs that they believe are important and feasible to look for and prevalent in their geographic areas.

In screening of the general population, particularly workplace screening, marijuana is one of the more commonly found drugs, especially in young people. Use of drugs such as PCP and hallucinogens is generally less common than use of marijuana. The 1993 survey of drug use among high school seniors showed a significant increase in the use of the hallucinogen LSD (Johnson et al., 1994). Standard toxicologic tests do not screen for hallucinogens or inhalants. LSD is detectable in urine by the EMIT test up to 1 day after use (American Bar Association Center on Children and the Law, 1991).

If the urine screening test comes back negative for drugs, this result means that within the detection limitations of the drugs that were looked for, no drugs were found. No single toxicology test can determine that a patient has ingested no drugs at all.

A positive screen for any nonprescribed psychoactive substance should be a strong factor in the attending physician's decision to order an AOD assessment, if the patient consents. It is important to note, however, that positive results are not 100 percent definitive. If a confirmed positive result is required, a second test of a different type must be performed. Positive results of initial toxicologic screens are not confirmed by a laboratory unless a second test is specifically requested. This test is frequently done at an offsite laboratory and is relatively expensive to perform; results may not be returned for days. Therefore, such confirmatory tests are generally of no clinical value. A practitioner receiving unconfirmed positive test results may want to consult with the hospital laboratory about the meaning of the results and what the consequences of acting on these results might be.

There is no single set of test procedures that constitutes a standard urine drug screen. The range of the screening test will vary from locale to locale.

Positive results of urine drug screens may not indicate use or impairment at the time of injury, because metabolites of some drugs remain detectable for days or weeks after use. Cocaine, crack, and amphetamines may be detected in the urine more than 72 hours after use. Commonly used tests for marijuana measure a metabolite that is detectable in urine or blood for weeks after use. However, at least one study has used a more sophisticated test (radioimmunoassay) to determine marijuana use proximate to trauma. That work, a study of 1,023 victims of vehicular and nonvehicular crashes admitted to the University of Maryland's Shock Trauma Center, found that more than one-third (34.7 percent) had used marijuana within 4 hours of the time of injury. (Almost half of those patients also had positive blood alcohol concentrations.) New tests for

marijuana are being developed, and there is a possibility that a test will become available on a widespread basis to determine recent use.

Positive results of urine drug screens may not indicate use or impairment at the time of injury because metabolites of some drugs remain detectable for days or weeks after use.

Finally, negative results of laboratory tests for alcohol and other drugs do not definitively indicate that the patient does not have an AOD problem. For example, Rivara and associates (1993a) found that 25 percent of trauma patients who had negative BAC results tested positive for possible alcoholism on the short version of the Michigan Alcohol Screening Test (SMAST), a brief questionnaire described later in this chapter. Similarly, Soderstrom and colleagues (1992) noted that 15 of 24 trauma center patients (63 percent) who tested negative for alcohol at the time of admission had a current or past substance use disorder.

In short, although chemical testing is an invaluable part of AOD screening, one needs to understand the limitations of tests and evaluate results on an individual basis.

Other Chemical Testing

Some laboratory screening tests can be used to determine whether a patient is a chronic user of alcohol. These tests measure injury to liver cells and to the cells that manufacture red blood cells. A liver function test that indicates an elevated level of gamma-glutamyltransferase (GGT) and a complete blood count that indicates that the red blood cells have a greater than normal mean corpuscular volume (MCV) are both evidence of chronic alcohol abuse.

Description of Screening Questionnaires and Interviews

Screening for behavioral and medical signs of AOD problems is generally performed using a questionnaire that is administered by a member of the trauma team at the time of admission or when the patient is stable. Self-administered questionnaires are also available. In deciding which of the several available questionnaires to use, consideration should be given to whether a trained screener is needed, whether the test can be self-administered, and how much time is required and will be available for administering the questionnaire. No single screening instrument can be used with all injured patients.

Studies to determine whether a certain method of administering screening tests is superior (for example, face-to-face interviews, paper-and-pencil test, or computerized test) showed that various methods yielded similar results (National Institute on Alcohol Abuse and Alcoholism, 1993).

During administration of the screening questionnaire or brief interview, the interviewer should take the opportunity to ask about other factors relating to the patient's behavior and lifestyle. These factors include smoking, diet, and exercise, which may have a bearing on the addiction problem itself or on other health conditions. Asking screening questions about substance abuse

within this context reduces the patient's apprehension and increases his or her sense that the healthcare team is concerned about the whole person.

The consensus panel that developed this TIP felt that hospitals and trauma centers developing a screening program would wish to review many available instruments. Thus, several have been described and reproduced in the following section. Facilities may use an existing instrument or develop a screening tool based on questions from several instruments. Only the Michigan Alcohol Screening Test (MAST) has been extensively validated for use with trauma patients.

In deciding which of the several available questionnaires to use, consideration should be given to

- Whether a trained screener is needed
- Whether the test can be self-administered
- How much time is required and will be available for administering the questionnaire.

Alcohol Screening Questions

Alcohol screening questions generally focus on the *quantity and frequency* of alcohol use. Several questions have been recommended, although not enough research has been done on which are the most effective. Examples of questions include

- "How many days per week do you drink?" *(frequency)*
- "On a day when you drink alcohol, how many drinks do you have?" *(quantity)*
- "How many times in the last month did you drink more than five drinks at one sitting?" (*binge drinking).*

Research by Anda and associates (1988) has indicated a high correlation between binge drinking and injury. As discussed below, the context in which the questions are asked and the skills of the screener in asking them are important factors.

Cyr and Wartman (1988) found that asking just two questions in combination enabled them to detect alcoholism in more than 90 percent of a group of 47 alcoholic patients. The questions were, "Have you ever had a drinking problem?" and "When was your last drink?"

To minimize problems of inaccurate self-reporting, it is important to ask about specific amounts of drinking, rather than average amounts; to define a single drink; to inquire about specific amounts of beer, wine, and hard liquor; and to inquire about the frequency, quantity, and occasions of heavier use with separate questions (Cutler et al., 1988; Sobell and Sobell, 1990).

Asking just two questions in combination has been shown to detect alcoholism in more than 90 percent of a sample. The questions are

- "Have you ever had a drinking problem?"

- "When was your last drink?"

Alcohol Screening Tests

MAST and SMAST

The Michigan Alcohol Screening Test, developed in 1971 as a structured interview instrument with 25 questions, is one of the oldest and most commonly used screens to detect alcoholism. Among hospitalized trauma patients, it is the most frequently used instrument and the most extensively validated. The SMAST, presented in Exhibit 4-1, has also been used with similar reliability (Selzer et al., 1975). Evaluation data indicate that it is an effective diagnostic instrument and does not have a tendency to produce false positives, as does the MAST. Positive answers to four or more questions indicate the presence of an alcohol problem.

CAGE

The CAGE is another widely used questionnaire (Ewing, 1984; Mayfield et al., 1974). It has not been verified in trauma populations, although its sensitivity and specificity have been widely investigated and validated in a variety of populations. Among screening instruments for alcoholism, it is perhaps the shortest, consisting of four questions (see Exhibit 4-2). Two or more affirmative responses indicate with high likelihood that the patient is a problem drinker. Use of the CAGE with elderly populations has suggested that a positive response to one of the four questions is a better cutoff score (Buschbaum et al., 1991).

The CAGE is very brief, and therefore costs to administer are low. Sensitivity of the CAGE is relatively high; it is able to detect alcoholism in 85 percent of alcoholic patients. The specificity of the CAGE is over 90 percent, meaning that it is able to distinguish alcoholics from nonalcoholics in 90 of 100 cases.

A common criticism of the CAGE is that it is not gender sensitive -- that is, women who are problem drinkers are less likely than male problem drinkers to screen positive when this instrument is used. One study of more than 1,000 women found that asking simple questions about frequency and quantity of drinking, coupled with a question about binge drinking, was better than the CAGE in detecting alcohol problems among women (Waterson and Murray-Lyon, 1988).

Others have raised the issue that the CAGE identifies only persons who are alcohol dependent. Screening programs that rely only on the CAGE as a screen for alcoholism may not identify persons whose frequency and quantity of drinking (binge drinking) put them at risk of alcoholism.

Finally, the CAGE asks about "lifetime" experiences rather than current drinking problems. A person who no longer drinks may screen positive on the CAGE.

Screening programs that rely only on the CAGE as a screen for alcoholism may not identify persons whose frequency and quantity of drinking (binge drinking) put them at risk for alcoholism.

AUDIT

Another relatively short screening test for alcohol dependence was developed by the World Health Organization (Babor and Grant, 1989). The Alcohol Use Disorder Identification Test (AUDIT) consists of questions that have reliably identified high-risk drinkers in a six-nation study. Based on answers to a 150-item assessment, ten key questions were selected that were highly correlated with hazardous or harmful alcohol consumption. These ten questions are presented in Exhibit 4-3. They include three questions about alcohol use, four about dependence, and three about problems resulting from drinking. The 10-item AUDIT can be given as a self-administered test, or the questions can be read aloud. The AUDIT takes about 2 minutes to administer.

The responses to the ten questions are each scored from 0 to 4, with a maximum score of 40. Among patients diagnosed as exhibiting hazardous or harmful use of alcohol, 92 percent had an AUDIT score of 8 or more. Using a cutoff score of 8, the AUDIT has a sensitivity of 92 percent and a specificity of 87 percent (Saunders et al., 1993).

Compared with the SMAST, the AUDIT has been found to be better at detecting current alcohol problems. Barry and Fleming (1990) used the AUDIT or CAGE in a sample of 2,500 patients and found that when the first three questions of the AUDIT were modified, it identified 40 percent more patients at risk of problem drinking than the CAGE.

The modified AUDIT questions were

- "How many days per week do you drink?"
- "On a day when you drink alcohol, how many drinks do you have?"
- "How many times in the last month did you drink more than five drinks at one sitting?"

Particular strengths of the AUDIT in regard to screening of trauma patients are that it is designed for use in a primary healthcare setting, it provides early detection of hazardous and harmful drinking, and it is focused on present use rather than lifetime use.

SAAST

The Self-Administered Alcohol Screening Test (SAAST) was adapted from the MAST and focuses on detection of dependence (Swenson and Morse, 1975). It differs from the MAST by including an additional nine items on symptoms and some checks on consistency of responses. It uses a simple unweighted method of scoring. It has been reported to have a sensitivity of 95 percent. However, it is somewhat lengthy (35 items) for use as a screening instrument.

ADS

The 25-item Alcohol Dependence Scale (ADS) is a self-administered questionnaire that was designed to measure elements of the alcohol dependence syndrome, which was first postulated by Edwards and Gross (1976) and has since become the core concept of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV) diagnostic criteria (American Psychiatric Association, 1994). The DSM-IV criteria are commonly used as a basis for diagnosing dependence and substance use disorder.

The ADS focuses on drinking behavior in the previous 12 months. It measures impaired control over alcohol use, salience of alcohol-seeking behavior, tolerance, withdrawal symptoms, and a compulsive drinking style. The ADS and the MAST have been found to complement each other in that the MAST assesses the degree of problems related to alcohol use and the ADS yields a quantitative index of the severity of alcohol dependence (Ross et al., 1990).

When used as a screening tool in a sample of more than 500 AOD abuse treatment patients, the ADS was found to be as sensitive as the MAST in detecting alcohol disorders (Ross et al., 1990). In choosing between the two, clinicians could be guided by their screening objectives -- whether to look for level of dependence or for consequences of dependence.

HSS

The Health Screening Survey (HSS) is a 10-item masked alcoholism screening instrument (Wallace and Haines, 1985). It consists of the CAGE questions, questions about frequency and quantity of use, history of use and problems, and the Skinner Trauma Scale. Although it was found to have high sensitivity when used with samples of alcoholic patients, its sensitivity in a community primary care setting was low (Fleming and Barry, 1991). Because some of the 10 items have subparts, the HSS is longer than several other screening instruments in use.

T-ACE

The T-ACE, which was developed for use by obstetricians and gynecologists to detect high-risk drinking in women (Sokol et al., 1989), is a modification of the CAGE. The T-ACE has four questions. A question on tolerance (T) is substituted for the CAGE item concerning guilt. The item asks, "How many drinks does it take to make you high?" or "How many drinks can you hold?" The other three questions are the CAGE questions on feeling annoyed or guilty and on having an eye-opener (a drink first thing upon awakening). The developers of the instrument found that its sensitivity was high and that it was better than the MAST or CAGE in identifying risk-drinking behavior.

The T-ACE has been validated only with pregnant women. However, instruments developed for this specific population are based on research showing gender differences in drinking behaviors. Therefore, questions included in such instruments may be better at detecting alcohol problems in all women, not just pregnant women.

NET

The NET, also developed for use with pregnant women (Bottoms et al., 1989), has three questions. One question is from the MAST: "Do you consider yourself a normal drinker?"; one is from the CAGE: "Do you ever have an eye-opener?"; and one is from the T-ACE: "How many drinks can you hold?" A response indicating more than three drinks scores positive on the last item.

The developers found the NET to be comparable to the MAST, CAGE, and T-ACE in sensitivity. Its sensitivity has been validated only with pregnant women.

In a study of more than 7,000 women at a prenatal clinic, the TWEAK was found to be more sensitive than the CAGE or MAST and more specific than the T-ACE.

TWEAK

The TWEAK (Russell, et al., 1991) was also developed for use with pregnant women. It consists of five items that assess tolerance (T); worry (W): "Have close friends or relatives worried or complained about your drinking?"; eye-opener (E); amnesia (A): "Has a friend or family member ever told you things you said or did while drinking that you could not remember?"; and the need to cut down on drinking (K).

A 7-point scoring system is used; 2 points are given for positive responses to either of the first two questions (tolerance and worry), and positive responses to the other three questions score 1 point. A cutoff score of two indicates the likelihood of risk drinking.

In a study of more than 7,000 women at a prenatal clinic, the TWEAK was found to be more sensitive than the CAGE or MAST and more specific than the T-ACE.

Screening Tests for Other Drug Abuse

CAGE-AID

The CAGE-AID (CAGE Adapted to Include Drugs) modifies the CAGE questions for use in screening for drugs other than alcohol (Exhibit 4-4). Brown and Rounds (1991) tested its usefulness with 124 patients in a community family practice. It was found to have a sensitivity of 79 percent and a specificity of 77 percent. The authors suggested that stigma associated with use of illicit drugs may have limited its sensitivity. Like the CAGE, the CAGE-AID focuses on lifetime use; although individuals who are dependent may screen positive, individuals who are at risk may not.

DAST

The 28-item Drug Assessment Screening Test (Skinner, 1982) was modeled on the MAST. It is a self-administered screen and contains detailed instructions for completing it. It focuses on the

extent of problems related to drug use. It does not screen for frequency of drug use or the specific drug used.

A 20-item shortened version was found to have a sensitivity of 85 percent (Gavin et al., 1989). A ten-item version was also tested and found to be nearly as sensitive as the 28-item version (Skinner, 1993). It has not been tested in a primary care setting.

As with other screens for illicit drug use, respondents may answer negatively.

SSI

The Simple Screening Instrument (SSI) for AOD Abuse was developed by a consensus panel for the Center for Substance Abuse Treatment(see the TIP 11 in this series entitled Simple Screening Instruments for Outreach for Alcohol and Other Drug Abuse and Infectious Diseases). Source instruments for the questions included the MAST, CAGE, DAST, Problem-Oriented Screening Instrument for Teenagers (POSIT), HSS, AUDIT, and the Skinner History of Trauma Scale. It has 16 items and was developed for use by community outreach workers to provide a comprehensive screen for alcohol and other drug abuse. Two versions of the SSI were developed, one for self-administration, and one for use by an interviewer. Although the developers recommend administering the entire instrument, four questions can be used as a short screen.

The SSI also has a clinical observation checklist for signs and symptoms of AOD abuse (for example, needle track marks, tremors, and dilated or constricted pupils). The SSI has not been validated.

Descriptions of the screening instruments described here are presented in Exhibit 4-5.

Evaluating Results of AOD Screening

All the guidelines discussed here should be considered within the context of individual clinical judgment.

Blood alcohol concentrations greater than 20 mg/dl, an abnormally elevated GGT, more than two positive answers on the MAST or any other positive test on a screening questionnaire, or any positive drug screen for a psychoactive substance in urine screening indicate that the treating physician should determine whether the patient should be referred for further AOD assessment.

Factors Indicating That Further AOD Assessment Should Be Considered

- Blood alcohol concentrations greater than 20 mg/dl
- Any positive urine drug screen for a psychoactive substance
- An abnormally elevated GGT
- More than two positive answers on the MAST or any other positive test on a screening

questionnaire.

AOD Screening of Special Populations

Certain special populations of hospitalized trauma patients require special considerations in screening. These include patients who are

- Homeless
- Brain injured
- Illiterate
- Non-English speaking
- Adolescents
- Pregnant
- Elderly
- Victims of domestic violence
- Mentally ill
- Hearing-impaired or deaf.

It is unlikely that special needs will be an issue in chemical screening, which depends simply on drawing blood and urine. With questionnaires, such groups as the brain injured, the non-English speaking, adolescents, and patients with mental illness may require screening by personnel who are sensitive to their special needs and trained to address them. Elderly persons may be especially reluctant to discuss substance use problems because of the stigma they associate with such problems.

AOD Assessment

Assessment is a comprehensive process that goes beyond medical issues to include a broad range of biopsychosocial components. It should be done by a clinician with specialized training in assessing and treating substance use disorders. Throughout the following discussion, this person is referred to as an AOD clinician or AOD specialist. Persons who can fulfill this role are described below.

Assessment is a comprehensive process that goes beyond medical issues to include a broad range of biopsychosocial components.

When to Assess

If positive results of screening are received, the attending physician should consider ordering an AOD assessment, if the patient consents. The timing of the assessment must be tailored to the patient's capability to communicate and participate and the patient's receptivity to the process. Other factors to consider when deciding when to assess include the projected length of hospital stay, ongoing medical procedures, and whether the hospital has an inpatient treatment program. Another factor to consider is "the teachable moment," which was discussed in Chapter 3. AOD

assessment as soon as possible after the injury may help the patient to make the connection between AOD use and the injury. A general rule is to conduct an assessment as soon as possible after the need for it has been identified.

An argument for delaying the assessment comes from a study that found that patients were less likely to follow through with recommendations from assessment if it were done early during their hospital stay, when they were primarily concerned with their medical needs (Gentilello et al., 1988). Intervention provided as closely as possible to the time the patient could begin treatment was the most effective.

Early assessment is important for medical reasons to evaluate for the possibility of withdrawal. Another reason to assess as soon as possible is the need to improve pain management for patients who require additional medication. Some institutions have physicians on staff who are addiction specialists; consultation with these physicians may be necessary for patients in whom AOD withdrawal is suspected or anticipated or who require specialized pain management.

Patient Consent

When the treating physician is considering ordering an AOD assessment, he or she should communicate to the patient his or her concern about the possible contribution of alcohol and other drug use as a contributing factor. The physician should encourage the patient to agree to the assessment and participate fully in it. Another approach is to explain to the patient that the policy of the hospital is that patients who have positive laboratory screening tests should discuss their alcohol or other drug use with an AOD specialist.

The manner in which the idea of assessment is introduced to the patient is an important factor in gaining patient consent and participation. In hospitals where AOD screening programs are in place and staff have been trained to recognize and respond to substance abuse, patients may begin to feel early in their stay that discussing their substance abuse problems is possible. In some cases, the attending physician may not feel that he or she has the time or skill to adequately address positive screening results. However, the importance of the relationship between physician and trauma patient should not be underestimated. Expressions of concern about the patient's AOD use, coupled with a nonjudgmental attitude, will generally go a long way toward engaging the patient in the assessment process.

In hospitals where AOD screening programs are in place and staff have been trained to recognize and respond to substance abuse, patients may begin to feel early in their stay that discussing their substance abuse problems is possible.

Where to Assess the Trauma Patient

The assessment must be done confidentially, and the location should be chosen with this in mind. A patient's room is the most likely setting, but using this area may present some problems, particularly if it is not a private room. It may be up to the assessor to put the patient in a

wheelchair and take him or her to a private location, such as a vacant office or conference room. The patient may choose to be accompanied by a family member or friend.

Who Performs the AOD Assessment

AOD assessment requires a high level of knowledge and skill. The assessment should be performed by an AOD clinician who possesses good interviewing techniques and who is sensitive to cultural-ethnic and gender issues. Such personnel can include

- Physicians with specialized training
- Nurses with specialized training
- Social workers with addiction training
- AOD counselors
- Physician's assistants with specialized training.

Properly trained AOD clinicians maximize opportunities to motivate patients.

The assessor should have certified training in evaluating and treating persons with substance use disorders. A nonjudgmental, empathic attitude is crucial to the success of this process.

The Assessment Process

Assessment can be approached in a variety of ways by a variety of personnel. Face-to-face AOD assessment is a challenging and often difficult task, in particular because of the denial that nearly always surrounds substance use problems. The assessor should have certified training in evaluating and treating persons with substance use disorders. A nonjudgmental, empathic attitude is crucial to the success of this process. The interviewer must know how to confront traits not seen as frequently in non-substance-abusing populations. These include shame, manipulation, lying, minimization, belligerence, and anger.

The assessor should have a brief initial contact with the patient, introducing him- or herself and explaining why he or she is there. If the patient will be in the hospital for only a day, this first brief encounter may be all that is possible. Such an encounter may be limited to a brief educational intervention or advice about AOD use (see the discussion below of brief interventions). A skilled assessor usually can quickly establish a good rapport with the patient.

Patients may fear participating in the AOD assessment process if they do not understand the purpose of the process or the consequences of their responses. They may fear that the results of the AOD assessment will be obtained by the criminal justice system or that insurance companies will refuse to pay for treatment of injuries resulting from AOD use. Patients may also fear other consequences such as losing their jobs or the custody of their children. AOD assessment may be less threatening to the patient if the assessor assures the patient that the results will be kept in the strictest confidence. Specific measures for maintaining confidentiality can be mentioned, for example, use of consent forms (see Chapter 6). The assessor can state that the goal of the

assessment is not to force the patient to accept unwanted or unnecessary treatment but to help the patient make choices that could prevent reinjury.

As discussed above, the initial result of a urine drug screen may be false, and it may be the hospital's policy not to confirm these results because of costs. Therefore, the interviewer must be diplomatic when raising the topic of drug use with the patient. The assessor may want to consult with the laboratory first.

Facilities should examine their own resources and make decisions about how they can best be used. They may also consider looking outside their own walls. A trauma center or hospital treating injured patients may want to establish a linkage with an AOD treatment center to ensure comprehensive AOD assessment. Since it is usually the role of the patient's primary physician to initiate the process of comprehensive AOD assessment, it is important that the physician be knowledgeable about the implications of positive screening results. It is also important that the physician know the hospital and community resources for AOD assessment and treatment so that he or she can make referrals directly.

Since it is usually the role of the patient's primary physician to initiate the process of comprehensive AOD assessment, it is important that the physician be knowledgeable about the implications of positive screening results.

Special Concerns in AOD Assessment Of Trauma Patients

Traumatic injuries can complicate the AOD assessment process in both physical and psychological ways. On the most basic physical level, the patient may be unable to cooperate with the assessor. Intubation, which involves inserting a tube into the patient's trachea, restricts the patient's ability to communicate verbally. Medications may also impair the patient's mental status. Patients may be heavily sedated or lethargic. Traumatic brain injury may result in significant cognitive impairment.

Psychologically, patients will probably be focused on the current crisis -- the traumatic injury -- and may be unwilling to shift their focus to talk about the AOD problem. They may also be experiencing sensory overload from the environment of the trauma center or hospital; for example, many people may be going in and out of the room, and the medical equipment in the room may be intimidating or frightening. The support and concern of family, friends, physician, and hospital staff are important elements in gaining the patient's participation.

Trauma patients fall into a wide age range, and age can be a factor influencing the AOD assessment process at both ends of the spectrum. Adolescents, for example, are likely to be unwilling to participate in assessment and resistant to the message that some kind of intervention is necessary. The elderly may be difficult to communicate with because of hearing, cognitive, or other problems. Many elderly people view alcoholism or other drug abuse as shameful and may not be aware that addiction is a treatable disease. Some elderly people may rationalize their AOD abuse by stating that "life is not worth living" without alcohol or another drug. Many elderly

persons fear losing their independence and do not realize that continued use threatens the independence that they value so much.

Culturally sensitive assessors are an essential part of a successful assessment process. The skilled assessor will be able to take different approaches with individual patients, as needed. Attention must be given to the special issues involved with special populations, as listed above in the discussion of screening. Factors that should be considered include socioeconomic group, ethnicity, gender, and type of injury.

Patients' families should be brought into the assessment process whenever possible, if the patient consents. Their role is particularly important if the patient's ability to participate is limited. Families may deny or minimize the patient's AOD use. On the other hand, families of patients with AOD problems are often eager to talk about these problems with someone. However, as discussed in the next chapter, efforts must be made to protect the patient's privacy and confidentiality.

Patients' families should be brought into the assessment process whenever possible, if the patient consents.

All of these factors highlight the importance of having a skilled AOD assessor who is flexible enough to adapt to the special circumstances that are involved for the trauma patient.

Assessment Instruments

Specific tools have been formulated to assist in AOD assessments of adolescents and adults. Several assessment instruments for use with adolescents have been reproduced in the TIP *Screening and Assessment of Alcohol- and Drug-Abusing Adolescents*. The Assessment Severity Index (ASI), which is perhaps the most widely used AOD assessment instrument in adult populations, is reproduced in the TIP 7: *Screening and Assessment for Alcohol and Other Drug Abuse Among Adults in the Criminal Justice System*. A comprehensive discussion of assessment tools was considered by the panel to be beyond the scope of this TIP, the main focus of which is screening. However, the panel agreed on certain components that should be included in a comprehensive AOD assessment.

Components of the Assessment

The AOD assessment consists of a number of distinct components, and there is a formulation that occurs in piecing together the components to lead to a set of comprehensive, cohesive observations and recommendations. The assessment also takes into account laboratory screening results (such as BAC and urine toxicology tests).

The components of a complete assessment include a medical and psychiatric history, a physical examination, a mental status examination, a history of AOD use, and patterns of use. Assessment of several other life areas, such as family and employment status is also important, but is not described in detail here.

Medical history. The medical history should be focused on the patient's use of alcohol and other drugs. It should include the family medical history, including AOD problems of parents, siblings, aunts, and uncles. The patient's trauma history should also be included. The Skinner Trauma History, presented in Exhibit 4-6, consists of five questions about previous trauma injuries and is a simple way to gather this data. A score of two or more positive responses to the five questions has been shown to indicate a high probability of excessive drinking or alcohol abuse (Skinner et al., 1984). Obtaining the patient's trauma history is important because previous injuries are a primary predictor of future injury. Yet they are often not included in a typical medical history because many people do not view trauma as a disease.

Psychiatric history. The psychiatric history should include the history of AOD use and treatment. AOD use and abuse problems are prevalent in people with psychiatric illnesses, although many psychiatric symptoms abate rapidly with abstinence. Some people use and abuse AODs in an attempt to self-medicate their psychiatric problems. In fact, in some cases, patterns of AOD abuse can improve psychiatric symptoms, but they may also worsen them. Especially in brain-injured patients, symptoms of AOD use can be misdiagnosed as psychiatric disorders.

Another TIP in this series, Screening, Assessment, and Treatment Planning for Patients with Coexisting Mental Illness and AOD Abuse, discusses assessment of this patient population.

Physical examination. The physical exam, to be performed by a physician, is focused on factors associated with AOD use. The physician should look for symptoms of withdrawal and signs of chronic use. Signs of chronic use include a perforated septum (cocaine sniffing), liver damage (alcohol), or track marks (injection drug use). Some elderly persons have long histories of substance use. It is especially important to attend to physical findings in this population, because many elderly persons will deny or minimize use.

Mental status examination. A mental status examination is a key element in AOD assessment and is needed to validate the accuracy of the assessment. This examination considers the patient's mental status in areas such as mood, memory, orientation, and affect. The level of cognition is another area to be evaluated, particularly in patients with traumatic brain injury. Level of cognition is an important factor in the consideration of patients' ability to participate in their treatment. Results of the mental status examination can also contribute to making a diagnosis of withdrawal symptoms.

AOD history of use patterns. Patterns of alcohol and drug use in the patient's past contribute important information that helps lead to a diagnosis of chronic use. Information about these patterns can be obtained from the patient, from family members and significant others, and from physical signs and symptoms.

A single factor that is highly predictive of traumatic injury is quantity/frequency of alcohol and drug use, specifically, binge use of substances. Binge drinking is generally defined as consuming between five and nine drinks at one sitting at least once a week. Excessive use on isolated occasions results in acute neurological impairment, which increases the risk of traumatic injury. An example of a binge drinker is the young drinker who drinks only on weekends, but consumes excessive quantities.

Other areas to assess. Other areas to assess include

- Social history
- Family history
- Environmental components
- Employment history
- Educational history
- Legal status, including involvement with criminal justice system
- Financial status.

Determining an AOD Diagnosis

Negative Findings of Assessment

Some patients who screen positive for AOD use may not have a diagnosable AOD disorder. Some persons who are unaccustomed to drinking may show poor judgment in using alcohol and then driving. Such a person, who is likely to feel very guilty about drinking and driving and its consequences, may benefit from a reassuring comment from a healthcare professional about the dangers of driving after drinking and the need to avoid such behavior in the future, and probably nothing more as far as an AOD intervention is concerned.

Positive Findings of Assessment

A positive assessment results in a diagnosable condition of a substance abuse disorder, as defined in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV) (1994). Exhibit 4-7 presents DSM-IV criteria for substance dependence. The diagnosis will determine the severity of the substance use disorder and has to be considered in the context of traumatic injury as well as the biopsychosocial context.

Once a condition has been diagnosed, a treatment plan can be developed that takes into account the severity of the patient's substance use disorder, the available treatment resources, and the patient's preferences. The American Society of Addiction Medicine (ASAM) has developed criteria and recommendations for patient placement in various levels and types of treatment (ASAM, 1991). Other criteria for placing patients in treatment have been developed by States and managed-care organizations. Some of those are reviewed in another TIP in this series, *The Role and Current Status of Patient Placement Criteria in the Treatment of Substance Use Disorders*.

If the assessment reveals that a patient has experienced AOD withdrawal in the past, this information can be used to estimate the severity of current withdrawal signs and symptoms.

Postassessment Considerations

Treatment Planning

The discussion below focuses on some issues specific to treatment planning for hospitalized trauma patients. A detailed discussion of treatment planning and treatment is beyond the scope of this TIP. Other TIPs in this series have addressed treatment for special populations including adolescents, pregnant women, offenders, persons with coexisting mental illness and substance abuse, persons with human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS), and persons with opiate addictions.

A discussion of the effectiveness of brief interventions has been included at the end of this chapter. Some brief intervention strategies may be used in the hospital setting with patients who are recovering from injuries. Such interventions can help keep patients with AOD problems focused on the need for treatment and can motivate and prepare them for entering treatment.

Treatment planning, like assessment, employs a biopsychosocial approach. The entire range of AOD treatment options should be considered for the trauma patient, including inpatient AOD treatment, intensive outpatient treatment, outpatient treatment, residential treatment, family therapy, and so forth. Information pertaining to the patient's medical condition, as it relates to trauma, must be integrated into treatment planning and aftercare planning. Some patients, for example, will be taking prescribed analgesics, and pain management becomes an issue.

As discussed in Chapter 3, AOD abusers may display difficult behaviors. The assessment may document behaviors that can complicate medical, nursing, and psychiatric management of patients. Knowledge of these issues can sometimes help staff anticipate deviations from the normal hospital course.

For many trauma patients, posttrauma care will include ongoing rehabilitation and physical therapy. There may be a long period as an inpatient. Recommendation for AOD abuse treatment may coincide with these other therapies, and the patient's course of treatment will affect the type of AOD treatment that is most appropriate and possible. Continuing care should be anticipated and discussed in the early stages of treatment planning. This care can include participation in self-help groups and regular telephone contact with the counselor.

As discussed in Chapter 3, models are needed for providing effective AOD treatment to patients with cognitive impairments resulting from brain damage and patients with paralysis from spinal cord injuries. Special AA meetings or other support groups may offer help to patients and families.

If the patient is willing, the family should become involved in the treatment as soon as possible. Family issues are frequently pivotal in undertaking AOD abuse treatment. The traumatic injury is often a crisis for the family, as well as for the patient. It is a clear signal that help is needed, and it is an opportunity to get help. Family members are usually adversely affected by the AOD problems of the patient. They may have AOD problems themselves and may have mixed feelings about getting help for the patient. They may feel as helpless as the patient in doing something

about the situation. The involvement of an AOD professional in addressing these issues can help them work toward a positive resolution. Contact with the family can be established only with appropriate consents. The process of obtaining these consents is described in Chapter 6 of this TIP.

Role of the Primary Care Physician

American Medical Association policy guidelines describe the role of primary care physicians in handling substance abuse problems in patients (American Medical Association, 1979). Three different roles are defined. At the first level or role, all physicians with clinical responsibility should recognize AOD-caused dysfunction as early as possible and be aware of medical complications of AOD disorders. They should be able to assess and diagnose AOD disorders and to refer patients to appropriate sources of AOD treatment. At the second level are physicians who accept limited treatment responsibility, mainly to restore the individual to the point of being capable of participating in long-term AOD treatment. In this role, the physician assists the patient in achieving an AOD-free state and a long-term recoveries plan; the physician helps the patient learn about the nature of his or her disease.

At the third level are physicians who accept responsibility for long-term treatment of patients with AOD problems. These physicians acquire knowledge via training and experience in the treatment of AOD disorders, including pharmacological treatments. Such physicians establish a supportive, nonjudgmental relationship with the patient and establish conditions and limits of the therapy; the physician is available to the patient as needed for an indefinite period of recovery. Physicians periodically evaluate and update the recovery plan and involve the patient in various health, social, vocational, and spiritual support systems.

American Medical Association policy guidelines describe the role of primary care physicians in detecting and treating substance abuse problems in their patients or referring them for treatment.

Brief Interventions

The Effectiveness of Brief Interventions

Brief, empathic interventions that consist of even a single session can decrease consumption of alcohol and its adverse effects by 20 to 50 percent (Babor and Grant, 1992; Chick et al., 1985; Wallace et al., 1988). Research has found that when programs are implemented to identify problem drinking and drug use, physicians' behaviors change coincident with increased confidence in their own management skills (Wallace et al., 1988; Graham, 1991).

Brief, empathic interventions that consist of even a single session can decrease consumption of alcohol and its adverse effects by 20 to 50 percent.

Specific strategies and supporting research for such brief interventions are described in this section. The focus of research to date has been on reducing alcohol use. Although such interventions may be similarly effective in decreasing use of other drugs, more research is needed.

The earliest healthcare research on brief interventions for problem drinkers occurred in the emergency medical care setting, where personnel were concerned about how to facilitate referrals to AOD treatment (Chafetz, 1961; Chafetz et al., 1962). Without any intervention, investigators found that only 5 percent of those referred to a postdischarge appointment with an AOD specialist kept the appointment. A brief intervention strategy was implemented in which a specially trained counselor met briefly with the patient after emergency care was completed. The counselor discussed and evaluated the patient's drinking. An empathic approach that communicated respect, understanding, and caring was emphasized. Sixty-five percent of patients who received this brief intervention kept the followup appointment. In a replication of the study (Chafetz, 1968; Chafetz et al., 1964), the appointment completion rates were 6 percent for the control group (no intervention) and 78 percent for the group that received the intervention.

A study by Kristenson and associates (1983) in Sweden showed that simple, inexpensive, short-term interventions were effective in motivating patients to change their heavy drinking behaviors. In that study, levels of the liver enzyme gamma-glutamyltransferase (GGT) were measured in 8,859 men ages 46 to 53. Elevated levels were used to select heavy drinkers from this group. These subjects were offered monthly GGT tests and monthly medical check-ins with a nurse (quarterly with a physician). They were encouraged to lower their overall alcohol consumption. These interventions resulted in a significant decrease in the subjects' alcohol consumption and days absent from work because of illness, as well as lower GGT values over a period of 6 years.

A number of other clinical trials have examined the effectiveness of brief advice with problem drinkers. Bien and colleagues identified 10 such studies in healthcare settings in 14 countries (Bien et al., 1993). In Great Britain, the impact of a physician's advice on the reduction of excessive alcohol consumption was demonstrated in a 12-month followup study of 909 heavy drinkers (Wallace et al., 1988). Participants were given general advice on smoking, exercise, and diet. The intervention group was also given information on the potentially harmful effects of their drinking and was provided a weekly diary to record alcohol use. Group members were shown a histogram comparing their weekly alcohol consumption with national norms, given a booklet on sensible drinking, and scheduled for followup visits. Twelve months later, the intervention group showed significant reductions in heavy drinking -- in fact, a twofold greater reduction than the control group. There was no substantial change in smoking, exercise frequency, or weight reduction.

A multinational study for the World Health Organization on brief interventions with heavy drinkers had similar findings (Babor and Grant, 1992). This landmark study developed and tested brief-intervention protocols in 10 countries with diverse cultures and healthcare systems. (This project also developed the AUDIT screening test discussed earlier in this chapter and shown in Exhibit 4-3). The intervention protocols tested included simple advice (a 5-minute session on sensible drinking or abstinence), brief counseling (a 15-minute session and a self-help manual),

and extended counseling (initial brief counseling and three or more monitoring visits). The findings upheld the positive results of other minimal intervention studies: alcohol consumption was significantly reduced, even in the group that received the briefest intervention.

Common Elements of Effective Brief Interventions

Research in healthcare settings supports the efficacy of using brief interventions for people identified as having addictive behaviors. Several common elements of effective brief interventions have been identified.

Bien and colleagues (1993) observed that many successful brief interventions focused on raising the patient's awareness of the problem and providing advice; they speculated that these approaches addressed critical conditions needed to instigate change. Miller and Sanchez (1993) enumerated six elements, commonly included in brief interventions, that have been shown to be effective. They are summarized by the acronym FRAMES: Feedback, Responsibility, Advice, Menu, Empathy, and Self-Efficacy (see Exhibit 4-8).

A landmark, multinational study for the World Health Organization on brief interventions with heavy drinkers found that alcohol consumption was significantly reduced, even in the group that received the briefest intervention -- 5 minutes of simple advice.

Client-Centered Interviewing

As discussed in the commentary by Bien and colleagues (1993), current medical training emphasizes technology-based, physician-centered decisionmaking. Excluded from most training are skills in effective listening, negotiating with patients, and dealing with ambivalence. Physicians may learn to blame patients for lack of compliance and for denial, whereas their own interviewing and negotiating styles may greatly influence a patient's compliance and outcome.

The patient's motivation is an important factor in changing behavior. A healthcare professional can encourage motivation with client-centered interviewing that makes the patient an active participant in setting the goals to be achieved. The elements of the interview should be empathic and warm, yet provide objective feedback of the data obtained from screening and assessment. Aggressive confrontation or coercion will not achieve the objective of encouraging the patient to change.

Researchers additionally recommend that the interview incorporate the following elements (Delbanco, 1992; Miller and Rollnick, 1991; Ockene et al., 1988; Rollnick et al., 1992):

- Assessing the patient's readiness for change
- Identifying barriers to recovery
- Identifying patient strengths
- Reinterpreting past experiences in light of current medical consequences
- Negotiating a followup plan
- Providing hope.

Assessing Readiness to Change

A key reason for the effectiveness of brief interventions may be that they affect a person's motivation for change. Once such motivation has been aroused, the patient may proceed to change negative behavior with little or no assistance.

A 12-item Readiness to Change Questionnaire was developed for use in brief, opportunistic interventions with excessive drinkers (Rollnick et al., 1992). It includes such items as "Sometimes I think I should cut down on my drinking" and "Drinking less alcohol would be pointless for me" and provides a short and convenient measure of the patient's willingness to change. It was designed with the nonspecialist (in AOD treatment) in mind. When the instrument was used as a screening tool in general hospitals, it was found to be a good predictor of a patient's motivation for change (Heather et al., 1993).

Copies of the questionnaire and a users' manual are available on request from Nick Heather, National Drug and Alcohol Research Centre, University of New South Wales, P.O. Box 1, Kensington, NSW 2033, Australia.

Aggressive confrontation or coercion will not achieve the objective of encouraging the patient to change.

Referral

The healthcare professional can refer the patient to appropriate treatment programs or counselors or recommend a self-help group. Studies suggest that such referrals can lead to successful treatment yielding long-term benefits (Elvy et al., 1988). A variety of specific practices increase the likelihood of a successful referral. These practices include the following, in addition to the FRAMES elements outlined above:

- Telephoning for a specific appointment with the patient present
- Following up with an encouraging note or phone call
- Arranging for the patient to be seen without delay.

If an immediate appointment is not available, some evaluation and intervention should be provided immediately, rather than have the client wait until an appointment is available.

Summary

There is encouraging evidence that the course of addictive behaviors can be effectively altered by intervention strategies that are feasible within relatively brief contact situations. These strategies can be implemented by nurses, nurses' aides, counselors, psychologists, social workers, physicians, and other professionals. Some strategies found to achieve results include

- Empathic interview and negotiation techniques, including negotiation of a followup plan
- Provision of hope for change

- Clinician call to arrange an initial appointment for followup care
- Followup letter or phone call from clinician
- Policy of seeing the patient immediately rather than putting him or her on a waiting list
- Verbal or written contracts with the clinician
- Goal setting for cessation of drug or alcohol use
- Instructional and self-help reading materials
- Completion of weekly AOD use diaries
- Role-play procedures to prepare patient for treatment.

Perhaps the most important element of brief interventions is a caring style on the part of the clinician, including an emphasis on the client's personal responsibility for recovery, and encouragement that the client already has sufficient personal resources to accomplish the needed behavior change.

Alcohol and Other Drug Screening of Hospitalized Trauma Patients
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Chapter 5 -- Cost-Benefit Issues Affecting Implementation of Screening

One of the central concerns in screening for alcohol and other drug (AOD) abuse in hospitalized trauma patients should be determining whether the optimum benefits are being obtained for the costs expended. The costs of screening can be seen both in terms of monetary expenditures and the compromises of patients' confidentiality and privacy that necessarily result from gathering AOD-related information.

This chapter discusses the benefits of screening hospitalized trauma patients and the monetary costs that can be expected to be incurred by an AOD screening and assessment program targeted to this population. The costs listed in this chapter reflect those at the time of publication of this Treatment Improvement Protocol (TIP).

Weighing Benefits and Costs Of Screening

Benefits of AOD Treatment

The overall benefits of AOD screening in at-risk populations are well known to those specializing in AOD abuse services. Identifying and treating substance use problems greatly benefit patients and their families. These benefits include improvements in overall patient health status and in family emotional health. The screening process frequently identifies AOD problems early in their development. Early prevention and intervention efforts with at-risk populations have long-term benefits that are difficult to calculate.

With effective treatment, moreover, the percentage of patients reentering treatment programs has been shown to be low (Walsh et al., 1991). Some degree of benefits will be achieved for most patients receiving treatment (Babor and Grant, 1992; Wallace et al., 1988). These benefits include a reduction in the overall costs of healthcare (Holder and Blose, 1992).

The benefits to society of treating AOD use disorders are clear. The recently published CALDATA study has added ample data to the growing accumulation of evidence that AOD treatment is highly cost-beneficial (California Department of Alcohol and Drug Programs, 1994). This rigorously designed study of a representative sample of 150,000 persons treated in a broad range of treatment settings in California in 1992 found that every dollar invested in AOD treatment saved more than $7 in future costs -- costs largely related to crime and healthcare.

The benefits to society of treating AOD use disorders are clear. The recently published CALDATA study has added ample data to the growing accumulation of evidence that AOD treatment is highly cost beneficial.

Benefits of Brief Interventions

In weighing the costs and benefits of any AOD screening program, the availability of resources to address the problems identified through screening must be considered. Ideally, efforts should be made to match each patient to an appropriate mode of treatment. The efficacy and availability, as well as the costs, of various modes of treatment must therefore be taken into account when costs and benefits are analyzed. For example, in the CALDATA study described above, the cost of treating 150,000 persons in 1992 was $209 million. However, the benefits received during treatment and in the first year afterward were worth approximately $1.5 billion to taxpaying citizens.

Many hospitals face limited funding and resources for AOD abuse treatment. Such limits may play a role in decisions not to implement AOD screening programs among hospitalized trauma patients. However, research has shown that the most effective treatment modalities are not the most expensive options (Holder et al., 1991). Even relatively brief, minimal interventions have been shown to be effective (Bien et al., 1993.) Chapter 4 describes some brief intervention strategies.

Benefits of AOD Screening Among Trauma Patients

As discussed in earlier chapters of this TIP, traumatic injury is very costly to society. The direct and indirect costs approach $110 billion every year, making treatment of traumatic injury more costly than that of any disease. Lifetime costs approach $215 billion. About 2.3 million persons with traumatic injuries are admitted to trauma centers and hospitals each year. Many of these patients recover from their injuries and are reinjured. One of the main objectives of AOD screening among trauma patients is to reduce reinjury and its associated costs, both personal and economic.

Other benefits of AOD screening among injured patients with AOD problems include

- Better medical management of hospitalized patients *(see Chapter 3)*
- Safer and more effective pain management
- Increased identification by clinicians of the causes of postinjury medical problems, such as wound infections
- Improvements in aftercare planning and treatment
- Enhancement of patient compliance
    -
    - -Increased probability of compliance with physical rehabilitation or other followup care
    - -Increased patient compliance with AOD and other treatment regimens, preventing further hospitalization due to wound infections or other complications
- Prevention of future AOD-related injuries.

It should also be noted that widespread implementation of AOD screening among injured patients will generate important data about the scope of the problem of AOD-related injury and its costs to society. Such data can be used in public education efforts and to pursue increased funding for alcohol and other drug abuse treatment.

Finally, in hospitals where screening programs are implemented and addressing the patients' AOD problems becomes a routine part of care delivery, improved morale of nursing and other staff can be expected, as well as greater patient and family satisfaction with the care provided. Physicians and other healthcare workers, many of whom may be skeptical about the effectiveness of AOD interventions and treatment, may find their attitudes and beliefs changing as they see improvements in the well-being of patients and families.

Costs of Implementation of Screening And Assessment

Costs can create a significant obstacle to the decision to implement an AOD screening program. In New York State, legislation was passed to require third-party payers to reimburse hospitals for the costs of AOD screening and intervention. Such action at the State level removes a significant barrier to the implementation of screening programs, allowing the benefits of treatment to be realized -- not only by patients and their families, but by society as a whole.

In New York State, legislation was passed to require third-party payers to reimburse hospitals for the costs of AOD screening and intervention, removing a significant barrier to the implementation of screening programs.

The cost of screening for AOD abuse in any population will vary according to the screening method used and the number of people screened. Whereas laboratory tests indicate recent use of AODs, interviews and questionnaires elicit information about patterns of use and possible AOD dependence. Costs for administering simple interviews and questionnaires must be considered in calculating cost of screening programs.

In some cases, especially when withdrawal symptoms are suspected, a consultation with a physician with special training in addiction medicine may be indicated, a consultation that will increase the cost for that patient.

Finally, a comprehensive AOD assessment, which may be warranted in some cases, should be performed by a person with specialized training, and these costs must be considered.

Screening and assessment involve a spectrum of services, each with associated costs. Average costs include

- Laboratory tests: blood alcohol concentration (BAC), $44; urine toxicology, $48
- Brief screening for behavioral indicators: $20
- Addiction medicine consultation: $50 to $150
- Comprehensive AOD assessment by nonphysician AOD clinician: $40 to $80.

In addition, costs for training hospital staff and educating them about AOD use and dependence should be factored into the overall costs. In the following section, issues related to the costs summarized above are discussed.

Laboratory Costs

The costs of laboratory screening for AODs will vary according to volume -- how many patients receive the tests -- and the type of test used. In most areas of the country, testing of a patient's BAC can be done for approximately $44, although in some areas this cost may be much higher (see Exhibit 5-1). Saliva testing for alcohol can usually be done for $10 or less.

A six-drug urine toxicology screen (for opiates, benzodiazepines, barbiturates, amphetamines, cocaine, and marijuana) can generally be done for under $50. The expense of the test varies based on the number of drugs it detects. Factors to be considered in deciding which drugs to screen for include the prevalence of drug use in the local population. Cocaine use, for example, may be prevalent in some major metropolitan areas, whereas use of other drugs may predominate in other areas.

It is helpful for both the effectiveness and the credibility of the screening program to have a physician liaison to the screening/assessment team who has specialized training in addiction medicine.

Costs for Other Screening Procedures and Physician Consultation

Chapter 4 of this TIP describes a variety of nonlaboratory methods of AOD screening that provide important information about patterns of AOD use and possible AOD dependence to supplement results of laboratory tests. This screening can be done with minimal expense of time and resources while achieving a high degree of effectiveness (Bush et al., 1987). In general, just a few AOD screening questions can reliably identify AOD problems. As discussed in Chapter 4, the questions themselves, and the concern expressed by the interviewer are effective brief interventions with some patients.

Ideally, an AOD screening interviewer should carry out screening for behavioral risk factors. However, with minimal training, brief screens can be administered by a nurse, a social worker, a certified addictions counselor, or other nonphysician healthcare worker. Some instruments are paper-and-pencil questionnaires that patients can fill out themselves. In most areas of the country, it is estimated that costs for gathering this supplemental screening information would be about $20 per patient. Costs may be higher in some areas. This estimate is based on staff costs associated with interviewing patients. The estimate of $20 per patient is based on two patients interviewed per hour, plus 1 hour of preparation time per day.

It is helpful for both the effectiveness and the credibility of the screening program to have a physician liaison to the screening/assessment team who has specialized training in addiction medicine. The physician acts as a resource to the team, creating liaisons with hospital medical staff. The physician may consult with the primary physician about managing the patient's addiction or withdrawal, discuss the patient's AOD use with the patient, or assist the treatment

team in planning for aftercare to address AOD problems. The cost of a physician liaison to the team for 2 to 4 hours per week would range from $200 to $400. Separate physician consultations for individual patients may add an extra $100 to $200 per patient.

Training Costs

In addition to the costs of performing the laboratory tests and supplemental screening interviews, costs relating to education and training of healthcare personnel must also be taken into account when calculating the costs of implementing an AOD screening program for trauma patients. Many emergency department personnel encounter persons with chronic, long-term AOD problems. Many of these patients either have not received AOD treatment or have had ineffective treatment. Repeated experiences with this patient group often shape staff members' attitudes about persons with AOD use disorders and the effectiveness of AOD treatment.

Education is needed to raise the awareness and change the attitudes of nursing and other hospital staff, including emergency department staff, regarding the link between abuse of AODs (particularly alcohol) and traumatic injuries. It should be noted that a feedback process frequently occurs once an AOD screening and assessment program is implemented in a facility. Attitudes of hospital personnel often change when they note the benefits to individual patients and their families.

Hospital personnel also need education about how the medical management of trauma patients is affected by AOD use and dependence. The effects of AOD use and dependence on patient management in the acute, subacute, and rehabilitation phases of care are described in Chapter 3. Providing this inservice medical training to a wide range of hospital personnel will also raise costs. However, as discussed above, significant benefits in terms of improved care, patient and family satisfaction, and staff morale may offset costs for training.

Costs of Assessment

As described in Chapter 4, comprehensive AOD assessments of patients with positive screens may be necessary as clinical circumstances warrant. The use of extensive assessment instruments is best delayed until the patient chooses to receive help for an AOD problem and consents to a more comprehensive assessment.

Assessment must be performed by a clinician with training in assessment and treatment of substance use disorders. As indicated in Exhibit 5-1, costs per hour for nonphysician AOD clinicians range from $9 to $30; rates for physicians are much higher.

The need for a full-time AOD clinician to perform assessments and recommend treatment will be determined on the basis of the institution's particular needs, the volume of trauma patients handled, and the incidence of AOD abuse in the surrounding population. Such AOD clinicians may see as many as 4,000 to 5,000 patients per year in some institutions (New York State Office of Alcoholism and Substance Abuse, 1993).

Many institutions do not have the resources to employ full-time AOD clinicians. One of the purposes of this TIP is to show that AOD clinicians play an important role in providing appropriate medical care and that funds should be allocated for these positions. In 1987 and 1989, Soderstrom and colleagues conducted a national survey of trauma centers to assess clinical practices involving alcohol (Soderstrom and Cowley, 1987; Soderstrom et al., 1994a). In the earlier survey of 154 centers in 43 States and the District of Columbia, it was found that fewer than a third of the centers employed an alcoholism counselor/clinician. The updated survey, which involved 316 respondents, found a significant increase (59 percent) in the number of centers employing a full-time counselor/clinician with specific training in substance abuse. Many hospitals have come to recognize the need for an AOD clinician, especially in the trauma setting.

Other Costs

Mutual-help or support group contacts. Contacts from self-help or support groups are important adjuncts to an AOD screening program. To fulfill its intended role, AOD screening should be designed to lead into available treatment resources and adjunct resources such as mutual-help and support groups. The costs of developing and maintaining these

contacts for the ongoing recovery of patients identified with AOD abuse problems must be factored into the overall costs of screening.

Recordkeeping. A care provider offering AOD abuse services is subject to Federal regulations governing the confidentiality of patients' records. As discussed in Chapter 6, some information in the records of trauma patients who undergo assessment by an AOD clinician is protected under Federal regulations, which restrict how it is to be used and what can be done with it. Special procedures for handling protected records will affect costs, although these procedures can be simplified (see Chapter 7).

Many institutions do not have the resources to employ full-time AOD clinicians. One of the purposes of this TIP is to show that AOD clinicians play an important role in providing appropriate medical care and that funds should be allocated for these positions.

Alcohol and Other Drug Screening of Hospitalized Trauma Patients
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Chapter 6 -- Legal and Ethical Concerns

This chapter explores legal and ethical issues posed by alcohol and other drug (AOD) screening of hospitalized trauma patients, especially those concerning protecting patients' confidentiality according to Federal regulations. A case example provides a practical, concrete example of clinical decisionmaking in a context in which patients' rights to privacy and confidentiality are protected.

Overview of Legal and Ethical Issues

Patient Consent to Treatment

By signing a general medical consent form in an emergency department, a patient gives consent to receive diagnostic and screening tests that are deemed necessary to the management of the presenting problem. In situations when a patient is incapacitated and cannot sign, it is permissible for treating personnel to proceed with any measures deemed necessary to provide medical treatment. Thus, in order to gain information that will affect the patient's medical management, a physician can order a blood alcohol concentration (BAC) and a urine drug screen for a patient who arrives at the emergency department with traumatic injuries. Additional specific consent does not have to be obtained from the patient for these tests.

Privacy and Confidentiality

Like many other medical interventions, screening for AOD abuse necessarily entails some degree of encroachment on an individual's privacy. Whether screening is done by laboratory testing or administration of a behavioral questionnaire, information about the individual is being gathered that pertains to his or her lifestyle and personal habits. When this information is shared with other caregivers, the individual's confidentiality is also imposed upon.

These impositions are generally intended to be in the interests of the patient, whether for the medical management of the presenting condition or to encourage the acceptance of treatment for AOD abuse and dependence. It is common for people with AOD problems, however, to face social stigmatization and discrimination when these problems become known to others.

It was partly the unfortunate consequences of stigmatization that gave rise to Federal regulations and laws protecting information related to patients' AOD abuse. Although healthcare staff need to have all of the information relating to a patient's medical care, this need must be weighed

against the potential consequences to the patient of having his or her privacy impinged upon by dissemination of that information to others. Caregivers are obligated to obtain, share, and safeguard AOD-related information appropriately. This obligation is both ethical and legal in nature.

The obligation of caregivers to ensure that AOD-related information is obtained, shared, and safeguarded in an appropriate and responsible manner is both ethical and legal in nature.

Ethically, caregivers need to have a clear understanding of when it is necessary and appropriate to obtain this information and to share it with others, weighing the beneficial effects against the liabilities imposed on the patient's autonomy. Legally, they must be aware of the laws and regulations governing confidentiality, and the circumstances under which patients' consent is required if they want to disclose AOD-related information.

Other Ethical Issues

Although the importance of protecting a patient's privacy cannot be overemphasized, other important ethical issues arise concerning the issue of screening to identify AOD abuse among hospitalized trauma patients.

Substance use disorders are diagnosable conditions with effective treatments. Untreated substance use disorders frequently result in serious medical conditions. In the case of trauma patients, untreated substance abuse can lead to reinjury or death -- for both the person with the disorder and others. Some researchers have pointed out that traumatic injury is so strongly associated with alcohol abuse and alcoholism, that injury, especially repeated injury, can be regarded as a symptom of alcoholism.

If a clinician reviews the results of a laboratory test and suspects that a patient has a treatable disorder, is it ever ethical not to refer the patient to treatment? Under what circumstances would a physician who was treating a patient with hypertension choose not to investigate the causes of the condition or advise the patient? Could a physician claim that because the patient presented for treatment of an unrelated skin disorder, investigating and treating the hypertension was not required?

If a clinician reviews the results of a laboratory test and suspects that a patient has a diagnosable and treatable disorder, is it ethical not to further diagnose the condition or refer the patient to treatment? In the case of substance use disorders, do care providers have ethical obligations to protect society from those whose actions might cause serious harm to themselves or others?

Do care providers have ethical obligations to protect society from those whose actions might cause serious harm to themselves or others, and at great financial cost? How far should society go toward protecting individuals from harming themselves?

Questions such as these touch deep feelings in American society today. Screening for AOD abuse among trauma patients raises many of the issues with which Americans are currently struggling. An assumption of the consensus panel that developed this TIP is that, from a medical perspective, there is no valid reason for failing to address the underlying cause of traumatic injury.

Federal Regulations Governing Confidentiality

Unfortunately, despite efforts to educate the public about the nature of substance use disorders, they remain socially stigmatizing conditions, and patients often face adverse consequences when information about substance use is disclosed. Such a patient, for example, may find it difficult or impossible to obtain insurance coverage for hospitalization costs if it is made known that his or her traumatic injuries were related to alcoholism. In turn, these adverse consequences often discourage patients with AOD problems from seeking treatment.

When Federal Regulations Apply

The Federal regulations are contained in the Code of Federal Regulations Part 2 (42 C.F.R. Part 2), Confidentiality of Alcohol and Drug Abuse Patient Records. The intent of these regulations was to encourage individuals to seek treatment for AOD abuse problems by reducing the risk that they would be stigmatized or experience discrimination as a result.

Amendments to the regulations that were approved in 1987 specifically clarified which programs and records must be protected. In the general hospital setting, the regulations apply only to specialized programs that have either

-
  - a*) an identified unit which provides alcohol or other drug abuse diagnosis, treatment, or referral for treatment, or*
  - *b) medical personnel or other staff whose* ***primary function*** *is the provision of alcohol and other drug abuse diagnosis, treatment, or referral for treatment*(42 CFR Part 2 §2.11; emphasis added).

In congressional testimony about the amended regulations (52 Fed. Reg. 21796, 21797 (1990)), the Department of Health and Human Services (DHHS) made clear that records generated by general medical and trauma physicians were not covered by the regulations (because those persons' primary function was not to provide AOD services). The testimony cited reasons for amending the regulations to remove these records from coverage:

- *Applicability to specialized programs will lessen the adverse economic impact of the current regulations on a substantial number of facilities which provide alcohol and drug abuse care only as an incident to the provision of general medical care. We do not foresee that the elimination of hospital emergency rooms or surgical wards from coverage will act as a significant deterrent to patients seeking assistance for alcohol and drug abuse.*

DHHS went on in its commentary to explain that it believed that this change would not harm the congressional intent of ensuring confidentiality in order to attract people to alcohol and other drug abuse treatment:

- *In many instances it is questionable whether the applicability to general medical care facilities addresses the intent of Congress to enhance treatment incentives for alcohol and drug abuse inasmuch as many alcohol and/or drug abuse patients are treated in a general medical care facility not because they have made a decision to seek alcohol and drug abuse treatment but because they have suffered a trauma or have an acute condition with a primary diagnosis of other than alcohol or drug abuse.*

From the above discussion it can be seen that in general it is not necessary for trauma centers and hospitals to implement special rules for handling patient records to comply with Federal confidentiality regulations when treating trauma patients who may have AOD problems. However, many facilities that initiate screening programs find it is both effective and cost-effective treatment to have one or more full-time AOD counselor/clinicians on staff. These facilities may also find that, especially for seriously injured patients who have longer hospital stays, beginning some form of AOD counseling and treatment in the hospital setting is an important aspect of care. It is in these situations -- that is, when an individual whose primary function is to provide AOD assessment or treatment and/or when a patient is referred for AOD treatment in the hospital -- that institutions should comply with Federal confidentiality rules. Chapter 7 offers suggestions for handling patient records in compliance with these rules.

In order to emphasize the importance of respecting patient confidentiality and to provide information to facilities that must comply with these regulations, the consensus panel has included the following discussion of procedures, such as the use of consent forms, and other issues involved in complying with Federal regulations.

Do care providers have ethical obligations to protect society from those whose actions might cause serious harm to themselves or others, and at great financial cost? How far should society go toward protecting individuals from harming themselves?

How Screening Is Used in Patient Management

In acute management of a seriously injured person, an emergency department physician will be interested in determining whether a patient has an elevated blood alcohol concentration or has ingested other drugs. As described in Chapter 3, recent use of alcohol or other drugs will alter the patient's physiological responses and thereby affect immediate medical management. For example, an alcohol-dependent patient may experience withdrawal symptoms during acute care. Determining a patient's AOD status on admission is a starting point to gather information needed to render the best possible care, both in the hospital and during rehabilitation of serious injuries.

The reasons *why* the information about the patient's BAC is gathered will determine *how* this information must be treated. If it is gathered to effect the management of the presenting condition, it is protected by general rules about patient confidentiality and need not be treated

differently from any other medical information. To gain a complete and accurate clinical picture, a physician needs access to all of a patient's records concerning history and present condition. Such information should include whether there is an underlying pattern of substance abuse, since this information may have a bearing on the patient's condition. AOD screening may be done in order to identify antecedent problems or conditions that may have an impact on the medical management of the patient's presenting condition. This information, then, gathered for the purpose of managing the present condition, would not be subject to the Federal regulations. However, AOD-related information should always be handled with discretion.

When Patient Consent Is Required

If an AOD assessment is performed by an AOD clinician, whose primary function is the provision of diagnostic, treatment, or referral services for substance abuse, in order to engage the patient in receiving services for AOD abuse, the information obtained is protected under Federal regulations (42 C.F.R. Part 2) that require the express written permission of the patient in order for the information to be shared with others. A consent form as described in 42 C.F.R. Part 2 §2.31 must be signed by the patient in order for this information to be released. The form is a specific release form comprising eight elements (see Exhibit 6-1). A general medical consent form is not sufficient.

Under the Federal regulations, however, AOD-related information may be shared with other healthcare professionals who are providing services for the abuse disorder itself or for a condition arising from the abuse, without requiring the patient's consent (42 C.F.R. Part 2 §2.12(c)(3)):

- *Communication within a program or between a program and an entity having direct administrative control over that program. The restrictions on disclosure in these regulations do not apply to communications of information between or among personnel having a need for the information in connection with their duties that arise out of the provision of diagnosis, treatment, or referral for treatment of alcohol or drug abuse if the communications are (i) within a program or (ii) between a program and an entity that has direct administrative control over the program.*

Information gathered for the purpose of managing the trauma patient's medical condition is not subject to Federal confidentiality regulations. However, AOD-related information should always be handled with discretion.

The regulations define "treatment" as (42 C.F.R. Part 2 §2.11):

- *. . . the management and care of a patient suffering from alcohol or drug abuse, a condition which is identified as having been caused by that abuse, or both, in order to reduce or eliminate the adverse effects upon the patient.*

Application of the Federal regulations is not dependent on how AOD services are termed by an institution:

- *Coverage under Federal regulations does not depend on how a program labels its services. Calling itself a "prevention program" does not excuse a program from adhering to the confidentiality rules. It is the kind of services, not the label, that will determine whether the program must comply with the Federal law*.

The regulations also prohibit redisclosure of AOD-related information. This prohibition means that the person or agency to which the patient consents to have the information disclosed cannot in turn disclose the information to others without the patient's written consent.

Any disclosure of AOD-related information must be accompanied by a written statement that the information disclosed is protected by Federal law and that the person receiving the information cannot make any further disclosure of such information unless permitted by the regulations (42 C.F.R. Part 2 §2.32). This statement, not the consent form itself, should be explained and provided to the recipient of the information at the time of disclosure or earlier (see Exhibit 6-2).

The prohibition on redisclosure is clear. Those who receive the notice are prohibited from rereleasing information except as permitted by the regulations. (However, a patient may sign a consent form authorizing such a redisclosure.) The rules about redisclosure also apply to disclosure of the information for purposes other than making decisions about medical management. For example, sharing information relating to a particular patient is sometimes done in case conferences for the purpose of bringing up a clinical problem or dilemma for discussion among a provider's colleagues. When this is done, however, the patient's identity must not be revealed; this would be redisclosing the information to others, which is prohibited by the regulations.

Obtaining written releases from patients for disclosure of AOD-related information can and should be seen as part of the therapeutic process. The patient and caregiver can discuss the implications of releasing information and the patient's choice to do so. By signing forms, patients demonstrate their commitment to treatment. The caregiver demonstrates a commitment to protecting.

Common Issues Surrounding AOD-Related Information

Patients Without Capacity to Communicate

Healthcare workers sometimes must obtain relevant clinical information from others when a patient lacks the capacity to communicate -- for example, when a patient is in a coma. In such a situation, can a caregiver speak with others, such as family members or friends? How does he or she talk with others without compromising the patient's confidentiality?

One approach is to make general inquiries concerning the patient's health, lifestyle, and medical history (such as inquiries pertaining to chronic medical conditions or to other injuries). These questions themselves may prompt the family member to volunteer information about the patient's AOD problem.

Another approach is to ask questions that will elicit information without disclosing confidential information about the patient. For example, a family member can be asked whether he or she has ever been concerned about a patient's drinking. Family members are often eager to discuss a patient's AOD problems.

Disclosures to Outside Agencies and Organizations

Treatment providers often find it necessary to communicate with individuals or organizations outside the hospital about a matter related to a patient's AOD abuse. A common scenario is one in which a patient needs to request a change in work shift in order to be able to attend therapy sessions or classes. Under such circumstances, what may a care provider communicate to a patient's employer, and how can this be done without inviting adverse consequences for the patient?

Because of the potential for discrimination against a patient with an AOD abuse problem, the caregiver should carefully discuss with the patient any proposed communications with the patient's employer beforehand.

Most patients have a sense of whether negative consequences are likely to ensue from employers' knowledge of their AOD abuse. In some cases, such as when a patient expects to be fired if his or her employer were to learn about the AOD abuse, the caregiver may need to explore other treatment modalities.

If the patient feels that the employer's knowledge would not constitute a major obstacle or result in discrimination, a caregiver can proceed with the communication after a proper consent form has been signed by the patient. Because a disclosure will be made to the employer when the caregiver requests a change in the patient's work schedule, the least possible amount of information that is necessary to achieve this goal should be disclosed. For continuing communications, the same rule applies: the employer should be provided with the least possible amount of information to satisfy the employer's needs. Often such communications involve simply stating that the patient attends treatment and is making progress in treatment. No clinical information, such as statements about the patient's mental status, should be given to the employer.

Because of the potential for discrimination against a patient with an AOD abuse problem, the caregiver should carefully discuss with the patient any proposed communications with the patient's employer beforehand.

Providers also often need access to records from another treatment program in which a patient was previously enrolled. In such a situation, two consent forms are involved. First, the patient must sign a consent form to allow the provider to communicate with the other treatment program. The patient must then sign a release form allowing the treatment program to release the records to the provider.

AOD-related information is often requested by patients' insurance companies in order to reimburse a claim. Insurance companies often withhold payment until they receive the information they have requested. Many times, however, insurance companies may be seeking more information than they have the right or need to know. It is prudent for the hospital to send the least amount of information required for reimbursement in order to protect the patient's confidentiality. A similar situation exists with managed care groups that act as gatekeepers for insurance companies.

Court Requests for AOD-Related Information

How should caregivers and hospitals proceed when medical or AOD intervention records are requested by legal authorities because a patient caused death or injury to someone else?

In the case of *United States v. Eide*, (875 F.2d 1429 9th Cir. 1989) the court held that emergency department records were protected and could not be used in a criminal investigation or prosecution of a patient. However, it is not clear to what extent this protection extends and whether it applies to a patient's entire hospital record. It is also unclear whether a provider or hospital administrator is required under the law to divulge a patient's BAC if requested by legal authorities; this requirement may vary from State to State. Hospitals should be aware of these issues, however, and should consult legal counsel about how to address the release of information to legal authorities, as well as possible subpoenas of treatment providers. These policy decisions must be made before such a situation arises.

It is sometimes unclear whether a provider or hospital administrator is required under the law to divulge a patient's BAC if requested by legal authorities; this requirement may vary from State to State.

Ethical Considerations: Weighing Benefits and Harms to Society and the Individual

Patient Autonomy vs. Potential Harm To Others

Although severely injured patients are often helpless and even unconscious, their right to autonomy -- and to privacy and confidentiality -- is not thereby suspended. A physician is expected to make decisions in the patient's best interest. However, in certain situations, what may maximize the patient's health (AOD intervention and treatment) may be in conflict with the patient's autonomy and, by extension, with the patient's privacy and confidentiality. Most clinicians have encountered this dilemma, and that tension exists in their minds.

Ethical thought always weighs benefits and burdens, harms and goods. The disease of addiction has far-reaching implications not only for individuals, but also for the common good. The social dimension of AOD abuse can be seen, for example, in the extensive role that it plays in traumatic injury and in damage to family relationships.

If caregivers invade patients' privacy in the name of society's greater good, patients will lose trust in caregivers and the benefits of treatment. They may avoid treatment because of realistic fears

of loss of job, home, access to family and children, and so forth, if confidentiality is breached. The primary purpose of the Federal confidentiality regulations is to ensure that these fears do not prevent persons from seeking treatment.

Even though our society greatly values the individual and individual liberties, protecting the common good sometimes justifies some degree of abridgement of individual liberties. The most common -- and extreme -- example of this abridgement is the withdrawal of civil liberties from a person who has been convicted of a crime. However, in the case of AOD abuse and dependence, it is only individuals who can take actions to change their behaviors. Individual choices are the basis by which changes occur in the large society. Therefore, respecting patients' autonomy -- their right to make choices -- is central to encouraging change.

The caregiver must continually ask what the least amount of patient information is that is needed to diagnose and treat the patient. Although the larger social implications of a patient's AOD abuse should be considered in decisions relating to the handling of AOD information, protection of these broader interests should not come at the cost of the patients' right to confidentiality.

In the case of AOD abuse and dependence, it is only individuals who can take actions to change their behaviors. Respecting patients' autonomy -- their right to make choices -- is central to encouraging change.

Limited AOD Treatment Resources

Valid ethical concerns surround 1) the identification of problems for which appropriate treatment resources may be limited or unavailable because of limited treatment capacity in the local area or 2) the patient's lack of insurance coverage for needed types of treatment. As discussed in Chapter 4, the effectiveness of even minimal interventions by the physician or other staff should not be discounted. In addition, caregivers with knowledge of valid self-help groups in the community may refer the patient to one of these groups. Strategies for increasing the effectiveness of referrals are discussed in Chapter 4.

Patient Choices

AOD disorders are life threatening and health threatening. Some patients who are using AODs hazardously can benefit from information about their problem; some of these individuals may not need formalized treatment and may be able to cut down or stop their AOD use on their own. By having all the available information, patients can be given the choice of taking responsibility for modifying their behavior.

Denial is a common characteristic of individuals with AOD abuse problems. Many patients fail to recognize the existence of their addiction and its relation to the adverse consequences caused by it. Some patients may understand that they are addicted but deny or minimize their condition because of fear of entering treatment and ambivalence about giving up alcohol or other drug use. The physician should give the patient all the relevant information and explore how the patient sees his or her problem. A great deal depends on the extent and sensitivity of the provider-patient

relationship and whether the patient is placed at the center of the process. Intrusively confronting the patient will not achieve the type of understanding necessary to accomplish the goal of change.

Ethical Issues in the Protection of Records

Large numbers of people handle charts, and some are not well trained to think in terms of confidentiality. Further, the gossip value of medical information should never be underestimated, from dinner party small talk to hospital elevator chatter. The computer age has made this long-standing problem far worse. Computerized information, as the newspaper stories continue to point out, is fairly easily accessible to many computer "hackers" with nothing more malevolent than mischief on their minds. However, computerized information may be desired by employers and insurers with other purposes in mind. The possibility of healthcare reform's bringing with it a "national health card" computerized throughout the country, with patient information available from the card, exponentially increases the dangers of charting information that stigmatizes the patient.

It is helpful for caregivers to ask the following questions in these and other specific instances in which a potential ethical problem arises:

- How much information do I truly need to adequately treat this patient?
- What is the minimum information that I need to chart so that other caregivers can adequately treat this patient?
- Does the potential and assumed common good sufficiently justify the potential and assumed harm to the patient?
- How much of a risk (for example, loss of job or family) is posed to the patient? Who measures this degree of risk -- the patient, the caregiver, or the two in conversation together? (The latter is preferable, if at all possible.)
- Do the potential harms that may result from the loss of the individual's privacy and confidentiality outweigh the potential harms to the patient, the family, and the community from AOD abuse?

There is generally no "right" answer to these questions, or they would not constitute the moral dilemma that they pose. Ethics is a constant weighing of facts and values, and data and beliefs to reach the most moral solution for the particular case at a particular time. Some basic ethical principles, however, can help guide these decisions:

- Maximize the individual's autonomy by protection of the patient's privacy and confidentiality.
- Maximize the medical and surgical effectiveness of treatment or beneficence.
- Promote beneficence in its truest sense by joining caregiver concepts of the patient's good to the patient's concept of that good.
- Abide by the spirit and letter of the law as it applies to confidentiality, privacy, and informed knowledge and consent.
- Minimize harm to the individual, family, and community (the ethical principle of nonmaleficence).

- Act to maximize the communal good, weighing the magnitude of the harm to society and the individual, and the long-term benefits to society and the individual (the ethical principle of justice).

The principles above may seem difficult to reconcile. However, as caregivers become familiar with ethical theory, reconciling them will become less difficult. Caregivers should feel free to call upon ethicists to help with especially difficult cases, if ethicists are available in local communities. The institution's ethics committees can be helpful in setting policy guidelines as well as in thinking through individual cases.

The Role of Hospitals and Other Agencies

Ensuring respect for patient privacy and confidentiality is not the sole responsibility of individual medical personnel. The institution as a whole must be committed to this approach, and administrators should institute policies and procedures that keep staff sensitized to confidentiality issues and that provide quality assurance in this area.

Hospital administrations should

- Provide ongoing staff training in this area
- Seek ways to protect patient records, such as implementing management information systems that reduce opportunities for abuse
- Issue policy statements on confidentiality and circulate to patients and staff.

Case Example

A case example may help to illustrate and clarify some of the points relating to the legal and ethical aspects of preserving the autonomy and confidentiality of patients who are hospitalized for traumatic injuries.

Herman S is a 50-year-old male who is brought to the emergency department with injuries from a motorcycle crash. He is awake and aware enough to sign consent forms for treatment in the emergency department, which routinely includes consent for a urine toxicology screen. The screen is positive for cocaine; the BAC is 300 mg/dl. Herman signs the necessary forms to be admitted to the hospital.

Because the results of toxicology and BAC determinations were obtained to help treat Mr. S's traumatic injury, this information can be included in his general medical chart and is not subject to Federal regulations.

The following are the notes made in Mr. S's chart by the attending physician upon Mr. S's admission to the emergency department:

Patient: Herman S

Presenting problems: Blunt abdominal trauma, right fractured femur.

Subjective data: Patient relates drinking the day of injury, denies alcohol problem; reports drinking for 10 years; two previous motorcycle crashes associated with alcohol intoxication.

Objective data: Stable vital signs, decreased bowel sounds, tenderness in right lower quadrant with some rebound.

Angry, belligerent responses to questions about alcohol use.

BAC=300, urine positive for cocaine.

Normal CBC and electrolytes; GGT = 190.

Rectal exam: Hematest negative.

Assessment: Fractured femur (R); alcohol intoxication; rule out abuse or dependence.

Information pertaining to Mr. S's responses to questions about his alcohol use is included because it relates to the caregiver's suspicion that alcohol use may be a complicating factor in Mr. S's condition. The provider also believes that the information shows a behavioral baseline against which subsequent changes can be compared. Yet, note again that because the information about Mr. S's possible alcoholism is needed to manage the patient's presenting medical condition and was not gathered by staff whose primary function was providing AOD diagnosis, treatment, or referral, it is not subject to Federal confidentiality regulations and need not be treated differently from any other medical information.

To be sure, there are medical reasons for determining on admission whether Mr. S is dependent on alcohol. Alcohol dependence will increase the risks involved with surgery, including increased risk of bleeding due in part to an enlarged liver, poor healing, and increased risk of wound infection.

Herman S is a 50-year-old male who is brought to the emergency department with injuries from a motorcycle crash. The screen is positive for cocaine; the BAC is 300 mg/dl.

The attending physician, Dr. G, comes to see Mr. S a day later. From the chart, Dr. G sees that the patient has a benign abdomen and a fractured right femur. The patient's mental status is such that information about possible alcoholism must be obtained because of the danger of withdrawal symptoms. But since this information is for medical management and is not being gathered by an AOD clinician for the purpose of introducing AOD services, it is still not protected under Federal regulations. Therefore, while Dr. G may well need to ask Mr. S a number of questions about possible alcoholism, he should carefully consider which answers, if any, should be in the medical record, because the information will be open to many parties.

Mr. S is angry and hostile when asked about the possibility that he might have a "problem" with alcohol. He acknowledges that other people, particularly his sister, Peggy, have "pestered" him about his drinking, but claims that she does this because she is a "bitch" and tries to cover up

some unspecified other behavior. Dr. G explains to Mr. S how alcoholism can affect the manner in which he is treated for his injuries, both in terms of the need to prevent withdrawal symptoms and to adjust dosages of pain medications. Mr. S refuses to talk to Dr. G about his drinking, saying "just do whatever you have to do to get me out of the hospital and leave me alone."

Dr. G is concerned that the root cause of Mr. S's injuries will go untreated and would like to speak to Peggy S, the sister, to get information that can help him treat his patient. However, there are legal and ethical problems, as well as social problems. It is always useful to providers to remember that they do not know familial interactions, may do harm with information-seeking questions, and may receive questionable data. Further, legally and ethically, Dr. G cannot reveal information such as Mr. S's laboratory test results to Ms. S. And he needs Mr. S's consent to tell Ms. S his suspicions regarding the patient's alcoholism.

Mr. S refuses to talk to Dr. G about his drinking, saying "just do whatever you have to do to get me out of the hospital and leave me alone."

But after leaving the patient's room, Dr. G sees Ms. S in the corridor. She volunteers that the patient drinks a lot, that this crash was "just the latest in a series" of alcohol-related incidents, that Mr. S stays up late into the night drinking, and is usually passed out in the morning. She further says that both their parents were alcoholics, and that she has been after her brother for years to cut down or stop his drinking. She acknowledges that this enrages Mr. S who attributes her behavior to the fact that their parents preferred him to her, so she is "taking it out on him."

Ms. S has raised the subject of the patient's alcoholism herself. Thus, Dr. G may freely pursue the extent of his patient's drinking to judge its depth and whether he may need to institute management to prevent withdrawal. Dr. G may ask Ms. S if she knows if her brother is using other drugs, but he should not reveal the results of the toxicology screen, which would violate Mr. S's privacy.

Later that afternoon, Dr. G returns to Mr. S's room and asks how he is feeling. Mr. S complains that he is experiencing a lot of pain from his leg, particularly at dressing changes. Dr. G suggests that the dose of pain medication he is getting be increased and explains the importance of debridement (removing dead tissue) in order to prevent infection. He changes the dosage schedule to coordinate with dressing changes so that the maximum pain relief is achieved during that procedure. Dr. G has now shown Mr. S that his primary interest is in Mr. S's welfare and comfort, not in accusing him. This is an important step in building provider-patient trust, and developing a therapeutic bond.

The vignette also illustrates another reason to look for information about patient AOD abuse, as these patients often need higher levels of medication for adequate control of pain.

Dr. G visits Mr. S the next morning. He notes in the chart: *"Abdomen is normal, patient is eating."* His responsibility to Mr. S now centers on his alcohol intoxication on arrival in the emergency department. Dr. G tells Mr. S that Ms. S has talked to him about Mr. S's drinking, and that he responded with some questions, but did not reveal any information about his BAC or

other test results. Mr. S becomes belligerent, asserting again that his sister has other motives for making these statements. Dr. G is accepting of this, saying he is not taking the statements at face value. He asks Mr. S about his other crashes and whether his BAC was checked then. Mr. S responds with a half-hearted obscenity, saying he doesn't know the answer to the questions. Dr. G waits quietly and Mr. S concedes that he had been drinking at the time of those incidents. He is vague about the amount.

Dr. G tells Mr. S that more than half of motor vehicle crashes are linked to alcohol use. He tells him that continuing to drink is likely to lead to another crash. Mr. S is skeptical, saying he can take care of himself. Dr. G stops here to suggest that he send someone in to talk to Mr. S who can explain the effects of alcohol. Mr. S is still hostile, but grudgingly accepts the suggestion.

From a purely medical standpoint, Dr. G needed only a minimal amount of information about Mr. S's alcohol use in order to manage his patient's trauma-related injuries. He kept to this minimal standard, knowing he could not adequately protect the information. However, more information was needed for him to determine whether an AOD abuse intervention might be appropriate. His probing for information at this point is not for the purpose of guiding medical management, but rather to attempt to get Mr. S. to acknowledge the problem and to present some options to explore it, as a means of protecting Mr. S's life and health.

Dr. G's probing for information at this point is not for the purpose of guiding medical management, but rather to attempt to get Mr. S. to acknowledge the problem and to present some options to explore it.

Federal regulations governing confidentiality apply to the information gathered by the person Dr. G has suggested, who is one of the hospital's AOD clinicians. The clinician has specialized training and her primary function is to visit patients on various units and determine whether patients need AOD treatment.

The next day, the AOD clinician visits Mr. S to discuss his AOD abuse problem. It is a difficult but finally productive meeting. Subsequently, when Dr. G visits Mr. S, he hears a report of feeling better emotionally as well as physically. Mr. S tells Dr. G about his long history of alcohol use, his failed attempts to stop, and his feelings of hopelessness. He now has some hope that it may be possible to stop, and although he feels frightened, he is considering going into treatment.

Dr. G notes in the chart: "Patient has had a good talk with the AOD clinician. Assessment: Alcohol dependence; patient willing to go into treatment. Plan: work with AOD clinician to develop treatment options."

Dr. G needs this information because it has a bearing on how he will interact with and care for his patient in the future. However, it would be a good idea to keep this information separate from the rest of Mr. S's chart, whether it is placed in a special, AOD-related section of the chart or kept in a secure, separate location (see Chapter 7). Only essential information should be recorded, even in this context.

Dr. G now wants to talk further with Ms. S. It was evident to him during their first conversation that she also suffered the consequences of Mr. S's alcoholism, and he wants to talk with her about her concerns. The family's history is also sufficiently muddied by Mr. S's statements that he is concerned for Ms. S's health and welfare. He approaches her to see whether there is anything she might want to talk about in relation to her brother's drinking or in their interactions.

Concern for family members, both for their own sake and for that of the patient, must be balanced with issues of confidentiality. A question could even arise about whether Ms. S is now a patient of Dr. G's. If Dr. G does not intend to take on Ms. S as an additional patient, his interaction with her can be couched in terms of Mr. S's aftercare, particularly if she is her brother's primary support person. Dr. G may need to determine, for example, whether she is able to provide the needed support for Mr. S and whether she understands what her involvement will be if he goes back to live with her after he is discharged.

Dr. G may also inquire whether Ms. S is overwhelmed and unable to play this role, whether the long-established interaction with her brother is possibly destructive to both of them, and whether they would benefit from professional assistance. At this point, Dr. G has clearly stepped out of the role of medically managing Mr. S's traumatic injury. For this reason, it would be a good idea for him to record notes about this conversation -- if he decides to make any -- in Mr. S's chart in the section for information that is protected by Federal regulations. If Dr. G is concerned about Ms. S's problems for her own sake, he can let her know what her options are in case she needs and accepts support.

If Dr. G feels responsible for looking at Ms. S's problems individually, however, then the question arises of whether or not she herself becomes his patient. At that point, his responsibilities to her include protecting her autonomy and confidentiality, as he has done for her brother. Does Ms. S acknowledge a problem and accept the concept of support for it? What are her views on the family's history and interaction? In this case, information pertaining strictly to her (for example, that she is emotionally stressed) should not be recorded in Mr. S's chart. Again, Dr. G must ask the question, "What information do I really need to medically manage this patient and to treat the problem?" This is the minimalist approach, well suited to protect autonomy, confidentiality, and provider-patient trust.

Again, Dr. G must ask the question, "What information do I really need to medically manage this patient and to treat the problem?"

As an optional scenario, suppose Mr. S refuses to talk to the AOD clinician and checks out of the hospital against medical advice. Ms. S comes to pick up her brother at the hospital. Later, she calls Dr. G and expresses hopelessness about Mr. S's behavior and seems resigned to her role of taking care of her brother while putting up with his alcohol problems.

In this case, Dr. G can present options to Ms. S, such as where to go for support, or can point out to her that she could let her brother fend for himself. If Dr. G wants to provide counseling or care for Ms. S, however, he must take her on as a new patient, with her own medical record and her own confidentiality issues.

Summary

The "raw materials" gained from screening tests and from patients in the form of information about their AOD use and abuse should be used for the maximum potential benefit of those patients. Because this information is necessarily gained at the cost of the patient's privacy and confidentiality, the benefits to be gained must be carefully weighed in order to determine whether they justify these impositions.

In evaluating questions of how, when, and why to gather and disclose AOD-related information, caregivers should be guided by the tenet that the minimum amount is best and more is not better. The goal is good treatment, while protecting the patient from the real dangers of the breach of privacy and the loss of moral choices. Good stewardship of this information by those who have been entrusted with it is critical not only to protect patients' rights but also to strengthen the trust between providers and patients and to maximize the benefits of AOD treatment for individuals and for society.

Alcohol and Other Drug Screening of Hospitalized Trauma Patients
Treatment Improvement Protocol (TIP) Series: 16

Chapter 7 -- Recordkeeping and Quality Improvement

As described in Chapter 6, in some facilities and situations, the Federal confidentiality regulations protecting alcohol- and drug-related information will apply. This chapter discusses four possible models for handling patient records in compliance with the regulations. The remainder of the chapter explores ways in which institutions can ensure that screening programs are being carried out effectively and treatment outcomes and services are monitored as part of a continuing quality improvement process.

Overview

A central challenge to meet in implementing a program to screen for alcohol and other drug (AOD) abuse in hospitalized trauma patients is to develop an organization-wide system that focuses on optimal patient care while protecting patients' rights to privacy and confidentiality. Typically, once an efficient and effective system is implemented, these objectives will eventually become integrated into all aspects of the program rather than be seen as being imposed from the outside. But at present, some clinicians may regard such imposition as an obstacle to providing high-quality care.

This antagonism is a serious error, requiring a readjustment in clinical thinking. There can be no optimal treatment without respect for patient autonomy and confidentiality, if only because without these concerns, patients will not entrust providers with needed information and will leave the hospital with their AOD problems unaddressed. There is some stigmatization that can occur with other diseases, but it rarely includes the loss of employment, home, family, and so forth that can occur with a diagnosis of AOD abuse.

The dominance of the computer age has exponentially increased this problem. Medical records are increasingly stored as computer information, and this information becomes prey to many who should not have it. It is not only employers and insurers looking to reduce costs by storing information in computers that causes a problem. It is also the ease with which computerized information can be accessed that can give rise to "casual gossip" about a patient, particularly one of importance in a community, that makes privacy so difficult to attain. The proposed use of a "national health card" for healthcare reform purposes will make this trend toward open patient information even more dangerous to privacy and confidentiality.

There is some stigmatization that can occur with other diseases but it rarely includes the loss of

employment, home, and family that can occur with a diagnosis of AOD abuse. Patients must be assured of confidentiality so that their AOD problems can be addressed.

Once implemented, a screening system must be continually evaluated in terms of its efficiency and effectiveness. The objectives of a screening program should be seen in terms of both the outcomes of those patients who are screened (that is, whether trauma patients who abuse or are dependent on alcohol and other drugs eventually benefit from having their AOD problems identified) and the effectiveness of the mechanisms that have been employed to protect AOD-related information about patients.

Protecting Information in Patients' Records

As described in Chapter 6, Federal confidentiality regulations protect AOD-related information that is gathered by an identified unit that provides alcohol-or-other-drug-abuse diagnosis, treatment, or referral for treatment or by a clinician whose primary function is the provision of such services. In such situations, AOD-related information must be kept separate from other information in the patient's record that is not subject to this protection.

The potential administrative problems that may arise from the requirement to segregate certain AOD-related information may be reduced in a number of ways. In the following section, four models are proposed for complying with the Federal regulations and protecting patients' autonomy and privacy. The potential advantages and disadvantages of each model are described.

The potential administrative problems that may arise from the requirement to segregate certain AOD-related information may be reduced in a number of ways.

Model 1: Segregation of Protected Information Within the Record

To prevent inappropriate disclosure of protected information, it can be placed in a separate section in the chart that is designated as confidential, perhaps held together with a clip or rubber band. With this "rubber band" approach, this portion of the chart could then be shared among caregivers in the hospital on a need-to-know basis, without being open to the view of every staff person who picked up the chart. Sharing protected information with outside agencies would require that the patient sign a specific consent form.

Advantages

The physical separation of protected information in a patient's chart serves to remind care providers of the need for protecting this information.

Disadvantages

Some providers may see as burdensome the requirement to give special handling to some of the information in some patients' charts. They would rather be able to handle all patients' charts in a uniform manner. Separation of protected information, moreover, may inadvertently promote the view of AOD problems as "separate" from other health issues and may impede efforts to raise providers' awareness of AOD abuse as integral to a patient's overall health care. This reaction can be minimized if it is made clear to staff that the purpose is to comply with Federal regulations.

Moreover, many care providers may feel this approach is impractical, given time constraints and the need to see at a glance all pertinent information about a patient. Further complications arise with computerizing medical records and restricting access to them.

Model 2: Keeping Protected Information in a Separate Location

Protected information can be kept in a separate location from the rest of a patient's chart, such as in a locked cabinet or other similarly secure area. This approach provides, in effect, a stronger "rubber band" than that described in the first model.

With this model, a "gatekeeper" can be assigned who specializes in and understands Federal regulations pertaining to AOD abuse information. This person will be responsible for making the decision of when this information can be shared. Only this designated recordkeeper would have access to the protected portion of patients' medical records. This person could also be responsible for handling requests from outside agencies for protected information and ensuring that proper releases were signed before such disclosures were made.

Physical separation of clinical information is not unusual. Patient charts from past years are generally kept in a separate location. Physicians routinely request charts to be sent to them from this location so that they can review historical clinical information about the patient. In addition, nurses are quite accustomed to keeping some medications locked up and accessible only to designated personnel.

Advantages

This physical separation of protected information from the chart, with access restricted to a designated recordkeeper, affords the greatest degree of protection of confidentiality. This approach gives the patient greater control over dissemination of information to agencies outside the hospital. Patients can also be reasonably assured that protected information will not be exposed to any staff member who handles the chart, but must be specifically obtained from the recordkeeper. Restricting access in this manner may also have the effect of making staff more aware of the issues of confidentiality.

Disadvantages

One of the primary drawbacks of separating protected information in this manner is the potential inconvenience to caregivers who may need access to it. In addition, since the information is not with a patient's chart, a caregiver will not be able to gain the total picture of a patient from the chart alone.

Having a designated recordkeeper with the responsibility of releasing protected information to hospital caregivers may necessitate training a staff person regarding circumstances under which the protected information can be shared among staff within the institution. In some institutions with limited funding, adding this responsibility may be impractical.

Model 3: Using Discretion in Recording Information

AOD-related information obtained and used to guide a patient's medical management does not have to be protected according to the Federal regulations. Physicians and staff can protect the patient by recording only as much AOD-related information as needed to make a recommendation.

With this model, the information recorded in a patient's chart would be kept focused on those specific medical and surgical issues that are clinically related to the reasons for the patient's presenting condition (the traumatic injury and its sequelae), to its antecedents, and to planning for followup care. In this model, the "rubber band" consists of the scrupulousness and conceptual discrimination on the part of the caregiver who enters information in the chart. Labeling charts with information about confidentiality regulations may be considered.

This method of handling information can be thought of as a "minimalist" approach. Only information essential for an appropriate treatment plan is noted. This approach represents a major departure from the standard medical concept of "chart everything," in the expectation that all possible information will be useful for optimally treating the patient.

This method of handling AOD-related information can be thought of as a "minimalist" approach: only information essential for an appropriate treatment plan is noted.

Advantages

Recording AOD-related information in a patient's chart in this way has the beneficial effect of reminding care providers to relate a patient's AOD problem to his or her current reason for hospitalization. AOD problems would thus be seen as an integral part of the patient's medical management, rather than as a separate issue that is unrelated to his or her physical injuries and their sequelae.

"Chart everything" may still be the correct posture for medical diseases that are publicly accepted as not deriving from the patient's negligence. But that approach presents substantial ethical problems for a disease that is pejorative in the public mind. Recording a minimum of

information may lessen patients' fears that acknowledging an AOD problem will have disastrous consequences. If patients understand that their discussions with care providers about their AOD problems will not be recorded, this method can provide another tool against the common AOD problem of denial.

Disadvantages

Handling patients' charts in this manner would result in a nonindividualized record that might not reflect patients' individual needs surrounding all of the adjunct issues related to the hospitalization. Additionally, since there would be no requirement to physically separate this information from the rest of the patient's chart, caregivers in turn would not be routinely reminded of the need for protecting certain AOD-related information.

Model 4: Protecting the Entire Record

Complying with the Federal confidentiality regulations can be achieved not only by meeting the requirements they specify, but by actually exceeding them. In other words, an institution can choose to go beyond the requirements of the regulations and protect all information in all patients' records. As long as the Federal regulations governing confidentiality are met, additional information or restrictions can be added to the release form, which must comply with Federal requirements but does not have to be limited in scope.

If this approach were adopted, the entire record of every patient would be treated in accordance with the laws protecting confidentiality. All information in all patients' medical records would be shared among caregivers inside the hospital on a need-to-know basis. The patient's specific, written permission would be required to allow the release of any information to agencies outside the hospital. The hospital would thus become a sort of protective sanctuary of patients' medical information, with the patients themselves holding the key.

In light of the magnitude of the problem of AOD abuse and its relationship to hospitalization, increased safeguarding of information in the hospital records of all patients is a reasonable consideration. AOD information should be an integral part of the history taking for all patients admitted to the hospital.

This model might require or be facilitated by hiring staff whose specific job is to deal with confidentiality issues and to educate patients and staff about these issues.

Advantages

Patients may often be reluctant to sign a consent form for disclosure of AOD-related information because of the stigma surrounding AOD problems. Under this approach, however, additional restrictions on the disclosure of this information would be added to the consent form, to the effect that none of the patient's hospital records would be released to any individual or organization outside of the hospital without his or her express, written consent. This restriction may help allay many patients' apprehensions about the dissemination of this information.

Requiring patients' consent for disclosure of any information outside the healthcare institution would put the responsibility for disclosure in the hands of patients, who would then truly be in control of this information. Protecting the entire medical record may also help to address other medical conditions, such as human immunodeficiency virus (HIV) infection, that are potentially stigmatizing or that raise potential difficulties with insurance coverage.

This approach could move hospitals and the healthcare system further along in the overall mission of recognizing that AOD issues are an integral part of patients' medical history and should not be segregated from other information. It could also promote the understanding of AOD issues as an important part of the medical record and of patient management, rather than as a separate area of concern.

The potential benefits of this model include increased protection of patients' privacy, improved information management, and an enhanced commitment to improving the institution as a whole. This model could be viewed as a first step in focusing on the primary mission of providing optimal patient care and of placing the patient at the center of this mission. It can also make an important contribution to identifying the reality of the AOD problems in our midst and the need to address them.

Disadvantages

This option is far reaching and is not a quick or simple approach. It will involve finding ways to integrate AOD-related issues into the system as a whole, which will require hospitalwide evaluation.

The practical considerations raised by this model include its requiring more time to be put into effect and the need for a stepwise approach to implementation. In light of the increasing access to patients' records through electronic means and the potential confidentiality problems this access poses, as well as upcoming reforms in healthcare, this approach may be a tenable option.

Patients in small community hospitals often have fears that their stigmatizing conditions (such as AOD abuse or HIV infection) may become known to the community. Allowing the entire medical record of a patient with such a condition to be communicated within the hospital on a need-to-know basis may raise the possibility of social stigmatization in a small community. It may be possible, using this approach, to allow transfers to other hospitals when necessary through the creation of a network among medical facilities. A positive effect that may result from this approach in community hospitals, however, may be increased efforts to protect individual confidentiality.

Patients in small community hospitals often have fears that their stigmatizing conditions may become known to the community.

Quality Improvement and Assurance

The process of quality improvement focuses on identifying ways to determine whether services are being provided and whether desired outcomes are being met by the services. To make this determination, *outcomes criteria*, or the objectives of a program, are first defined. *Outcomes indicators* are then formulated to help assess whether goals are being met. Finally, *outcomes measures* are defined to determine whether the stated objectives have been achieved.

The purposes of quality improvement are to judge whether objectives are being met, to identify areas needing improvement, and to modify services being offered and the ways in which they are performed to respond to identified needs. Quality improvement entails evaluating the performance of an organization as a whole, as well as the performances of individual caregivers. To be effective, this process must involve the leaders of the organization as well as individual clinicians.

Monitoring outcomes and ensuring quality improvement is a process that should be carefully designed. Another Treatment Improvement Protocol in this series, *Developing State Outcomes Monitoring Systems for Alcohol and Other Drug Abuse Treatment*, addresses issues that should be considered in evaluating programs and outcomes.

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Outcomes Criteria and Indicators

Through the process of quality improvement, the various steps in the implementation of an AOD screening program can be evaluated and potential areas of difficulty identified. For example, one outcome criterion may be reducing the costs associated with complications that are avoidable with the timely identification of alcohol abuse. The complications arising from delirium tremens, for example, in a patient who is addicted to alcohol often require increased staff work loads, laboratory tests, diagnostic interventions, and consultations. Identifying alcohol dependence in such a patient before the onset of withdrawal symptoms will allow complications to be anticipated and averted.

Other outcome criteria for a screening program may include the following:

- Improvement of patient medical management (for example, shorter hospitalizations)
- Improvement of delivery of care (for example, improved efficiency, lower cost)
- Successful referral to appropriate AOD abuse treatment
- Reduction of reinjury rates and fatalities
- Reduction of family healthcare expenditures
- Improvements in screening tools and methods.

Other criteria will become self-evident, as desired outcomes are identified. Some general questions to be borne in mind when measuring outcomes are

- Are we doing what we say we will do (screening patients and addressing positive results)?
- Is the model working to achieve the goals?
- What other goals have become apparent?

Indicators of outcomes are specific elements or steps in the screening process that can be evaluated and tracked over time. In implementing an AOD screening program in hospitalized trauma patients, each organization needs to define these indicators according to the populations served and the objectives that have been identified.

The following are some examples of simple indicators based on extant data that do not have to be developed independently:

- Percentage of admitted trauma patients receiving blood alcohol concentration (BAC) determinations and urine drug screening tests
- Percentage of trauma patients with positive BAC and/or urine drug test results who receive assessment from an AOD clinician
- Percentage of positively assessed trauma patients who receive an aftercare plan (prior to discharge) addressing the identified AOD problem
- Percentage of trauma patients arriving at scheduled followup appointments for AOD treatment.

Outcomes Measures

The information obtained by tracking the various indicators allows specific measures of outcomes to be defined. Some examples of outcomes measures for delivery of care in an AOD screening program include the following:

- Percentage of patients with positive AOD screening results
- Percentage of these patients who on assessment were found to have underlying AOD problems
- Percentage of these patients (with AOD problems) who were referred for AOD treatment either in the hospital or after discharge
- Percentage of those receiving AOD treatment in the hospital who also received an aftercare plan for followup AOD treatment.

Because patient nursing costs are not handled separately, as are fees for physicians' services, nursing costs are more difficult to estimate on an individual patient basis. However, nurse surveys (that is, asking nurses to document the amount of time they spend each day with a given patient) can be extremely useful as measures of outcomes. For example, the bill for a patient who required increased laboratory tests and diagnostic studies because of avoidable AOD complications would not reflect the cost of increased nursing services that were also required.

Surveys designed to identify the effects of AOD screening on nursing staff workloads can be an excellent way to determine whether early identification of AOD problems results in improved delivery of care and decreased costs. Some of the questions that can be asked of nursing staff to gain this information include the following:

- Does having the results of AOD screening for hospitalized trauma patients change the way you are caring for your patients?
- Has having the results enhanced your ability to care for your patients? How?
- Are the results from the screening measures being presented in a timely manner to allow their incorporation into your treatment plans?
- Is the screening program helping patients to get proper consultations earlier?
- Does the usefulness of screening results vary by time of day and day of the week?
- Are screening results being used in a clinically meaningful way?
- Do the screening results help guide your nursing management? Do they affect decisions regarding the administration of p.r.n. (as-needed) medications for sedation, pain, and withdrawal symptoms?
- Are you able to maximize the efficiency of staffing patterns in response to these data?
- Have there been changes in staff morale since screening was implemented?

Measures of Confidentiality

An important question in relation to measuring the outcomes of AOD screening of trauma patients is whether the intrusions into patients' autonomy, confidentiality, and privacy are being decreased. Another question is whether the ethical balance of benefits and burdens, goods and harms, justifies the aggressive stance being taken toward AOD screening of trauma patients.

One way of measuring this outcome is to institute a protected audit of patient records that evaluates the appropriateness of the AOD-related notes that appear in the open portion of the record.

The concept of a *protected* audit means that staff with a high appreciation of confidentiality in this area will perform the audit. After all, oversight and regulatory functions can also constitute privacy intrusions. (It should be noted that Federal confidentiality regulations do permit audits under certain conditions so that auditors and evaluators can gain needed information.)

A selected or randomized continual inspection of charts could be done by a hospital ethicist, if one exists, or an ethics consultant, a designated member of an ethics committee or a confidentiality expert. The same person(s) should also conduct a quarterly audit of how effectively and with what goals the information in the closed part of selected charts is conveyed.

The effectiveness of an institution's policies on patient confidentiality can also be measured by how well these policies are understood by the providersdelivering care specifically related to trauma. Surgical staff, trauma teams, and emergency department staff, including nursing staff, should attend regular inservice presentations on these concerns, with interactive demonstrations of the proper approach to protecting confidentiality.

The approach used to safeguard AOD-related information will determine what outcomes are evaluated. Which of the four models described above is used will dictate the method of evaluating its effectiveness and its advantages and disadvantages.

Providing Feedback to Staff

For their professional growth and encouragement, staff providing care to trauma patients with AOD problems need to know that their efforts are making a difference. To provide concrete feedback and positive reinforcement, linkages for feedback mechanisms should be established so that staff have some way of knowing the eventual results of the screening process.

For their professional growth and encouragement, staff providing care to trauma patients with AOD problems need to know that their efforts are making a difference.

Ways to link the personnel involved in AOD screening and assessment with the followup process should be explored. Positive reinforcement for these staff members should be delivered in a timely fashion to provide them with a meaningful context in which services are delivered.

A personalized callback contact could be built into the AOD screening function. Patients could be asked to come in to tell success stories, both to staff and to patients receiving AOD counseling in the hospital.

Another means to provide feedback to staff may include making calls to see how patients are following up with treatment. The patient's confidentiality, however, must be protected in making these calls. Callers must be careful not to make disclosures to persons other than the patient and must ensure that they are talking to the patient before asking followup questions. As part of the discharge process, a consent form can be offered to allow such followup contact.

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Alcohol and Other Drug Screening of Hospitalized Trauma Patients
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Appendix B -- Glossary of Medical Terms

analgesia:

> (the state of) insensibility to pain without loss of consciousness.

analgesic:..

> characterized by or producing analgesia; an agent for producing analgesia.

arteriosclerosis:..

> a chronic disease characterized by abnormal thickening and hardening of the arterial walls with resulting loss of elasticity.

bradycardia:..

> relatively slow heart action.

CBC:..

> complete blood count.

cerebrovascular accident:..

> an occurrence of sudden damage to the brain or to the brain and the blood vessels surrounding it.

chemical paralysis:..

> complete or partial loss of function induced by chemical agents, usually involving power of motion or sensation in any part of the body.

cognition:..

> cognitive mental processes. Conscious intellectual activity such as thinking, reasoning, remembering, imagining, or learning.

colon:..

the large intestine from the cecum to the rectum.

CT scans:..

computerized tomography. Radiography (x-ray) in which three-dimensional images are constructed by computer from cross-sectional images.

debridement:..

the surgical removal of damaged, dead, or contaminated tissue.

decubitus ulcer:..

an ulceration of tissue deprived of nutrition by prolonged pressure; a bedsore.

electrolyte:..

a substance that when dissolved in a suitable solvent, such as water, or when fused becomes an ionic conductor... Maintaining appropriate electrolyte balance is necessary for regulating certain vital bodily functions.

endotracheal intubation:..

placement of a tube into the trachea to keep it open so that air passes to and from the lungs.

hematest:..

a test that checks for small quantities of blood in the stool, the presence of which can indicate gastrointestinal bleeding.

hypertension:..

abnormally high arterial blood pressure.

hypotension:..

abnormally low arterial blood pressure.

gamma-glutamyl transferase (GGT):..

a liver enzyme; an elevated level of GGT can indicate chronic alcohol use.

intracranial pressure monitoring:..

monitoring pressure within the skull; increased pressure can indicate a brain injury.

ischemic bowel:..

an insufficient blood supply to bowel tissue caused by obstruction or disruption of the inflow of blood (as in narrowing of arteries by spasm, disease, or injury).

mean corpuscular volume:..

the volume of the average red blood cell in a given blood sample; a larger than normal volume can be an indicator of chronic alcohol use.

myocardial infarction:..

damage to or death of heart tissue, usually as a result of the obstruction of local blood flow.

perforated septum:..

characterized by one or a series of perforations in a dividing wall or membrane, especially between bodily spaces or masses of soft tissue, such as the nasal septum, the bowel, and the eardrum.

peritoneal lavage:..

therapeutic washing of the smooth transparent membrane lining the abdominal cavity... This procedure can avoid the necessity of open abdominal surgery to detect internal bleeding following a traumatic injury.

physiatrist:..

a physician who specializes in physical medicine or physical therapy and rehabilitation.

right lower quadrant:..

the right side of the human body below the waist; one of the four segments into which the body can be divided.

tachycardia:..

rapid heartbeat, whether physiological (as after exercise) or pathological (resulting from disease).

trauma injury:..

tissue damage caused by external force or violence.

vascular headache:..

moderate to severe head pain resulting from constriction or dilatation of intracranial blood vessels.

vasoactive:..

affecting the blood vessels, especially in respect to the degree of their relaxation or contraction.

vital signs:..

signs of life; specifically, the pulse rate, respiratory rate, body temperature, and blood pressure.

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Appendix C -- Federal Resource Panel

John Ambre, M.D., Ph.D.

Director, Department of Toxicology and Drug Abuse

American Medical Association

Chicago, Illinois

James Callahan, D.P.A.

American Society of Addiction Medicine

Chevy Chase, Maryland

Sandra M. Clunies, M.S., N.C.A.D.C.

Government Project Officer, Quality Assurance and Evaluation Branch

Division of State Programs

Center for Substance Abuse Treatment

Substance Abuse and Mental Health Services Administration

Rockville, Maryland

Dorynne Czechowicz, M.D.

Associate Director for Medical and Professional Affairs

Medical Affairs Branch

Division of Clinical Research

National Institute on Drug Abuse

Rockville, Maryland

Herman I. Diesenhaus, Ph.D.

Review Administrator

Extramural Activities Review

Center for Substance Abuse Treatment

Substance Abuse and Mental Health Services Administration

Rockville, Maryland

David L. Griffith, M.S., M.Ed., R.N.

Public Health Advisor, Quality Assurance and Evaluation Branch

Division of State Programs

Center for Substance Abuse Treatment

Substance Abuse and Mental Health Services Administration

Rockville, Maryland

Linda Kaplan, M.A., C.A.E.

Executive Director

National Association of Alcoholism and Drug Abuse Counselors

Arlington, Virginia

Peter O. Rostenberg, M.D. **Chair**

Co-Chair Trauma Committee

American Society of Addiction Medicine

Internal Medicine, Addiction Medicine

New Fairfield, Connecticut

Paul R. Van Ostenberg, D.D.S., M.S.

Director, Department of Standards

Joint Commission on Accreditation of Healthcare Organizations

Oakbrook Terrace, Illinois

Alcohol and Other Drug Screening of Hospitalized Trauma Patients
Treatment Improvement Protocol (TIP) Series: 16

Appendix D -- Field Reviewers

Maryann Amodeo, M.S.W., Ph.D.

Director, Alcohol and Drug Institute for Policy, Training, and Research

Associate Professor

School of Social Work

Boston University

Boston, Massachusetts

Everett Atkins, M.A., C.D.C.

Certification Specialist, Certification Section

Division of Alcohol and Substance Abuse

Department of Social and Health Services

Olympia, Washington

Edward Bernstein, M.D.

Associate Professor, Emergency Medicine and Public Health

Boston City Hospital

Department of Emergency Medicine

West Newton, Massachusetts

Robert Brewer, M.D., M.S.P.H.

Medical Epidemiologist, Division of Unintentional Injury Prevention

National Center for Injury Prevention and Control

Centers for Disease Control and Prevention

Atlanta, Georgia

Margaret Kent Brooks, J.D.

Consultant

Montclair, New Jersey

H. Blair Carlson, M.D., M.S.P.H.

Medical Director, Chemical Dependency Treatment Services

Kaiser Permanente, Colorado Region

Denver, Colorado

Arthur W.K. Chan, Ph.D.

Senior Research Scientist, Research Institute on Addictions

New York State Office of Alcoholism and Substance Abuse Services

Buffalo, New York

Richard Christensen, P.A., C.A.S.

Director of Medical Services

Valle del Sol

Phoenix, Arizona

William Clark, M.D.

Medical Director, Addiction Resource Center

Mid-Coast Hospital

Bath, Maine

Dorynne Czechowicz, M.D.

Associate Director for Medical and Professional Affairs

Division of Clinical Research

National Institute on Drug Abuse

Rockville, Maryland

Elizabeth Danto, A.C.S.W.

Adjunct Assistant Professor

Hunter College and School of Social Work

City University of New York

New York, New York

David S. Davis, M.D., J.D.

Attending Physician, Emergency Department

North Arundel Hospital

Glen Burnie, Maryland

Andrew DiBartolomeo, M.D., M.B.A., F.A.C.E.P.

Medical Director

Apple Creek Developmental Center

Apple Creek, Ohio

Martin C. Dout, M.D.

Vice President of Medical Services

Lutheran General Behavioral Health

Lutheran General Hospital

Park Ridge, Illinois

Christopher W. Dunn, Ph.D.

Psychologist, Trauma Prevention Project

Harborview Medical Center

Seattle, Washington

Michael F. Fleming, M.D., M.P.H.

Associate Professor, Office of Alcohol and Addiction Studies

Department of Family Medicine and Practice

University of Wisconsin - Madison Medical School

Madison, Wisconsin

Richard J. Frances, M.D.

Director, Department of Psychiatry

Hackensack Medical Center

Hackensack, New Jersey

Roman Frankel, B.S., N.C.A.C. II, C.E.A.P.

President/Executive Director

New Start Inc.

West Bloomfield, Michigan

Steven Freng, M.S.W.

Systems Chief, Division of Alcoholism and Substance Abuse Services

Seattle-King County Department of Public Health

Seattle, Washington

Elizabeth A. Garcia, C.M.S.W.

Director of Managed Care

Pinal Gila Behavioral Health Association

Apache Junction, Arizona

Larry M. Gentilello, M.D.

Assistant Professor, Department of Surgery

Harborview Medical Center

Seattle, Washington

Andrea P. Goodman

Project Administrator

Office of Substance Abuse

Augusta, Maine

Marc Hertzman, M.D.

Medical Director, Department of Psychiatry

North Arundel Hospital

Glen Burnie, Maryland

Norman G. Hoffmann, Ph.D

Vice President

New Standards Inc.

St. Paul, Minnesota

ReneJ S. Holleran, R.N., Ph.D., C.E.N., C.C.R.N., C.F.R.N.

Chief Flight Nurse/Emergency Clinical Nurse Specialist

University of Cincinnati

Milford, Ohio

Vivian H. Jackson, A.C.S.W.

Clinical Social Work Associate

National Association of Social Workers

Washington, D.C.

Linda Kaplan, M.A., C.A.E.

Executive Director

National Association of Alcoholism and Drug Abuse Counselors

Arlington, Virginia

Christine L. Kasser, M.D.

Medical Director

Baptist Recovery Center

Memphis, Tennessee

Christoph R. Kaufmann, M.D., M.P.H.

Trauma Surgery Consultant, Division of Trauma and Emergency Medical Systems

Bureau of Health Resources Development

Health Resources and Services Administration

Rockville, Maryland

John J. Kelly, D.O., F.A.C.E.P.

Assistant Professor, Department of Emergency Medicine

Medical College of Pennsylvania

Philadelphia, Pennsylvania

Thomas W. Kozlowski, A.C.S.W.

Associate Director, Office of Mental Health Accreditation Services

Joint Commission on Accreditation of Healthcare Organizations

Oakbrook Terrace, Illinois

Michael S. Kuntzelman, M.D.

Deputy Medical Director

Arizona Center for Clinical Management

Tucson, Arizona

Karen E. Larson, R.N., B.S.N.

Assistant Director, Division of Alcohol and Drug Abuse

North Dakota Department of Human Services

Bismarck, North Dakota

Lawrence S. Linder, M.D.

Assistant Chief, Emergency Department

North Arundel Hospital

Glen Burnie, Maryland

John Loiselle, M.D.

Assistant Professor of Pediatric Emergency Medicine

Medical College of Pennsylvania

St. Christopher's Hospital for Children

Philadelphia, Pennsylvania

Carole A. Madden, R.N., B.S.N., C.D.

North Arundel Hospital

Glen Burnie, Maryland

Jan Mashman, M.D.

Medical Director

Assistant Clinical Professor

Department of Neurology

Yale Medical School

Brookfield, Connecticut

John R. Miles, M.P.A.

Substance Abuse Coordinator, Office of the Director

Division of STD/HIV Prevention

Centers for Disease Control and Prevention

Atlanta, Georgia

Richard Morin, M.D.

President

Morin Medical Services, P.C.

Ann Arbor, Michigan

Daniel A. Nauts, M.D.

Medical Director, Addiction Medicine Center

Montana Deaconess Medical Center

Great Falls, Montana

James M. Oher, C.S.W., C.E.A.P.

Managing Director

J.M. Oher & Associates

Chappaqua, New York

Mary A. O'Shea, R.N., M.N., C.C.R.N.

Nursing Informatics Coordinator

Department of Veterans Affairs Medical Center

Kansas City, Missouri

Ted Parran, Jr., M.D., F.A.C.P.

Assistant Clinical Professor of Medicine

Case Western Reserve University School of Medicine

Cleveland, Ohio

Kent A. Questad

Clinical Assistant Professor, Psychology

Department of Rehabilitation Medicine

Harborview Medical Center

Seattle, Washington

Jeanne Rigaud, M.S., A.D.C.

Program Manager, Division/Substance Abuse

Behavioral Health Services

New Mexico Department of Health

Santa Fe, New Mexico

Peter O. Rostenberg, M.D. B **Chair**

Co-Chair, Trauma Committee

American Society of Addiction Medicine

Internal Medicine, Addiction Medicine

New Fairfield, Connecticut

Susan D. Ryan

Chief, Emergency Medical Services Division

Office of Enforcement and Emergency Services

National Highway Traffic Safety Administration

U.S. Department of Transportation

Washington, D.C.

Paul N. Samuels

Director/President

Legal Action Center

New York, New York

Marguerite T. Saunders

Commissioner

New York State Office of Alcoholism and Substance Abuse Services

Albany, New York

Dena J. Seiden, Ph.D.

Medical Ethicist

Medical Ethics Consulting Services

New York, New York

Cherin Silver, Esq.

Philadelphia, Pennsylvania

Harvey Skinner, Ph.D.

Professor and Chairman, Department of Behavioral Science

Faculty of Medicine

University of Toronto

Toronto, Ontario, Canada

Carl A. Soderstrom, M.D., F.A.C.S.

Director, Office of Physician Education

Staff, Department of Surgery/Traumatology

R. Adams Cowley Shock Trauma Center

University of Maryland Medical Center

Baltimore, Maryland

Marilyn Sawyer Sommers, R.N., Ph.D.

Associate Professor, College of Nursing and Health

University of Cincinnati

Cinncinati, Ohio

Richard T. Suchinsky, M.D.

Associate Director, Addictive Disorders and Psychiatric Rehabilitation

Department of Veterans Affairs

Washington, D.C.

Herbert L. Thornhill, M.D.

Director, Department of Rehabilitation Medicine

Harlem Hospital Center

New York, New York

Julian A. Waller, M.D., M.P.H.

Professor of Medicine Emeritus, Department of Medicine

University of Vermont

Burlington, Vermont

Richard L. Weiss, Ph.D.

Psychology/Neuropsychology

Birmingham, Michigan

Robert S. Whitney, M.D.

Head of Medical Services, Clinical Research Center

Research Institute on Addictions

Buffalo, New York

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Alcohol and Other Drug Screening of Hospitalized Trauma Patients
Treatment Improvement Protocol (TIP) Series: 16

Exhibits

Exhibit 2-1 Risk Factors for Traumatic Injury

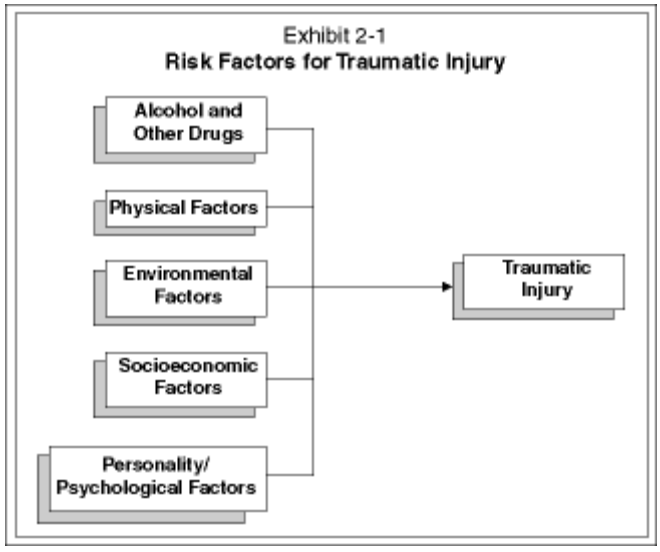

Exhibit 4-2 CAGE Questionnaire

CAGE Questionnaire

1. Have you felt the need to ***C***ut down on your drinking?
2. Do you feel ***A*** nnoyed by people complaining about your drinking?
3. Do you ever feel ***G*** uilty about your drinking?
4. Do you ever drink an ***E***ye-opener in the morning to relieve the shakes?

Source: Ewing, 1984; Mayfield et al., 1974.

Exhibit 4-3 Alcohol Use Disorder Identification Test (AUDIT)

Alcohol Use Disorder Identification Test (AUDIT)

1. How often do you have a drink containing alcohol?
   [ ] Never (0)
   [ ] Monthly or less (1)
   [ ] 2 to 4 times a month (2)
   [ ] 2 to 3 times a week (3)
   [ ] 4 or more times a week (4)
2. How many drinks containing alcohol do you have on a typical day when you are drinking?
   [ ] None (0)
   [ ] 1 or 2 (1)
   [ ] 3 or 4 (2)
   [ ] 5 or 6 (3)
   [ ] 7 or 9 (4)
   [ ] 10 or more (5)
3. How often do you have six or more drinks on one occasion?
   [ ] Never (0)
   [ ] Less than monthly (1)
   [ ] Monthly (2)
   [ ] Weekly (3)
   [ ] Daily or almost daily (4)
4. How often during the last year have you found that you were unable to stop drinking once you had started?
   [ ] Never (0)
   [ ] Less than monthly (1)
   [ ] Monthly (2)
   [ ] Weekly (3)
   [ ] Daily or almost daily (4)
5. How often during the last year have you failed to do what was normally expected of you because of drinking?
   [ ] Never (0)
   [ ] Less than monthly (1)
   [ ] Monthly (2)
   [ ] Weekly (3)
   [ ] Daily or almost daily (4)
6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?
   [ ] Never (0)
   [ ] Less than monthly (1)
   [ ] Monthly (2)
   [ ] Weekly (3)
   [ ] Daily or almost daily (4)
7. How often during the last year have you had a feeling of guilt or remorse after drinking?
   [ ] Never (0)
   [ ] Less than monthly (1)
   [ ] Monthly (2)
   [ ] Weekly (3)

[ ] Daily or almost daily (4)

8. How often during the last year have you been unable to remember what happened the night before because you had been drinking?
   [ ] Never (0)
   [ ] Less than monthly (1)
   [ ] Monthly (2)
   [ ] Weekly (3)
   [ ] Daily or almost daily (4)
9. Have you or someone else been injured as the result of your drinking?
   [ ] Never (0)
   [ ] Less than monthly (1)
   [ ] Monthly (2)
   [ ] Weekly (3)
   [ ] Daily or almost daily (4)
10. Has a relative, friend, or a doctor or other health worker been concerned about your drinking or suggested you cut down?
    [ ] Never (0)
    [ ] Less than monthly (1)
    [ ] Monthly (2)
    [ ] Weekly (3)
    [ ] Daily or almost daily (4)

Record the total of the specific items. [ ]

A score of 8 or greater may indicate the need for a more in-depth assessment.

Source: Developed by the World Health Organization, AMETHYST Project, 1987 (Babor and Grant, 1989).

Exhibit 4-4 CAGE-AID

CAGE-AID

1. Have you felt you ought to cut down on your drinking or drug use?
2. Have people annoyed you by criticizing your drinking or drug use?
3. Have you ever felt bad or guilty about your drinking or drug use?
4. Have you ever had a drink or used drugs first thing in the morning to steady your nerves, get rid of a hangover, or get the day started?

Source: Brown and Rounds, 1991.

Exhibit 4-5 Summary of Screening Instruments

Summary of Screening Instruments

Name	Recommended Cutoff Score	Population	General Comments

Alcohol Dependence Scale (ADS) (Horn et al., 1984)	Optimum cutoff score is 9; 12 if patients must meet all DSM-IV criteria; 14-21 indicates intermediate level of dependence; 22-30 indicates substantial dependence.	Adults	Rather lengthy as brief screen--25 items, self-administered; yields quantitative index of severity of dependence; focuses on behavior in past 12 months; complements MAST; assists in making diagnosis based on DSM-IV criteria.
Alcohol Use Disorder Identification Test (AUDIT)(Babor and Grant, 1989)	Possible score ranges from 9-40; 8 points or more indicate need for assessment.	Adults	Ten items; developed with multinational samples and widely validated; provides information on use and problem history in past year; does not detect past alcohol use problems.
Drug Assessment Screening Test (DAST) (Skinner, 1982)	Positive responses to five or more questions indicate likelihood of drug abuse.	Adults	Twenty items; yields quantitative index of degree of problems related to drug use; well validated; excellent diagnostic accuracy with respect to DSM-IV criteria.
CAGE (Ewing, 1984; Mayfield et al., 1974)	Two or more positive responses indicate need for assessment; with elderly, one positive response is an indicator.	Adults	Short--four items; easy for treatment professionals to remember; assesses lifetime consumption; does not measure levels of consumption or episodes of heavy drinking; may miss at-risk drinkers and women with drinking problems; good sensitivity and specificity; validated in many populations.
CAGE Adapted to Include Drugs (CAGE-AID) (Brown and Rounds, 1991)	Two or more positive responses indicate need for assessment.	Adults	Short--four items; advantages and disadvantages are same as for CAGE.
Health Screening Survey (HSS) (Wallace and Haines, 1985)	Depends on goals of screening program.	Adults	Rather lengthy as a brief screen--10 items on alcohol, with subparts; contains parallel questions on smoking, exercise, and weight to mask alcohol screening; well validated in primary care settings, although low sensitivity (78 percent); may be less sensitive in detecting alcohol

			problems in women.
Michigan Alcoholism Screening Test (MAST) (Selzer, 1971)	Optimum cutoff score is 13; 18 if patients must meet DSM-IV criteria.	Adults	Rather lengthy as a brief screen--25 items; assesses degree of lifetime alcohol-related problems; does not contain quantity-frequency questions; complements ADS; strong documentation of validity--used as "gold standard"; most accurate with heavy drinkers who recognize they have a problem; less accurate with at-risk drinkers.
NET (Bottoms et al., 1989)	Positive response to three questions.	Female adults	Brief--three questions; developed for use with pregnant women; sensitivity and specificity comparable to MAST, SMAST, CAGE, T-ACE; not validated with other groups.
Problem-Oriented Screening Instrument for Teenagers (POSIT) (National Institute on Drug Abuse, 1990)	One or more positive responses.	Adolescents	14-item subscale measuring alcohol and other drug use and abuse; part of Adolescent Assessment Referral System; validity studies not completed.
Self-Administered Alcoholism Screening Test (SAAST) (Swenson and Morse, 1975)	Ten points or more; items are unweighted.	Adults	Rather lengthy as a brief scan--35 items; focuses on detection of dependence.
Short MAST (SMAST) (Selzer et al., 1975)	Two points or more; items are weighted.	Adults	Brief--13 items; well validated in primary care settings.
T-ACE (Sokol et al., 1989)	Positive response to four questions.	Female adults	Brief--four questions; developed for use with pregnant women; reliably differentiates at-risk drinkers from

			nonrisk drinkers; not validated with other groups.
TWEAK (Russell et al., 1991)	Possible score of 7; items are weighted; 2 points or more indicate likelihood of risk drinking.	Female adults	Brief--five items; developed for use with pregnant women; offers advantages over the CAGE or MAST for detecting problem drinking in women.

Exhibit 4-6 Skinner Trauma History

Skinner Trauma History

Since your 18th birthday, have you

1. Had any fractures or dislocations to your bones or joints?
2. Been injured in a road traffic accident?
3. Injured your head?
4. Been injured in an assault or fight (excluding injuries during sports)?
5. Been injured after drinking?

Exhibit 4-7 DSM-IV Diagnostic Criteria For Substance Dependence

DSM-IV Diagnostic Criteria For Substance Dependence

The DSM-IV defines AOD addiction as "substance dependence," and describes the diagnostic criteria as a maladaptive pattern of substance use, leading to clinically significant impairment or distress, as manifested by three or more of the following occurring at any time in the same 12-month period:

1. Tolerance, as defined by either of the following:
    - The need for markedly increased amounts of the substance to achieve intoxication or desired effect.
    - Markedly diminished effect with continued use of the same amount of the substance.
2. Withdrawal, as manifested by either of the following:
    - The characteristic withdrawal syndrome for the substance.
    - The same (or closely related) substance is taken to relieve or avoid withdrawal symptoms.
3. Taking the substance often in larger amounts or over a longer period than was intended.
4. A persistent desire or unsuccessful efforts to cut down or control substance use.
5. Spending a great deal of time in activities necessary to obtain or use the substance or to recover from its effects.
6. Giving up or reducing important social, occupational, or recreational activities because of substance use.
7. Continued substance use despite knowledge of having had a persistent or recurrent physical or

psychological problem that was likely to have been caused or exacerbated by the substance.

Source: Adapted from American Psychiatric Association, 1994.

Exhibit 4-8 FRAMES: Elements of Brief Interventions

FRAMES: Elements of Brief Interventions

- **FEEDBACK** of personal risk or impairment. Most successful brief interventions provide clients with some form of feedback of the results of their AOD assessment.
- Emphasis on personal **RESPONSIBILITY** for change. Many brief interventions advise patients that drinking is their own responsibility and choice. The implicit or explicit message is that "What you do about your drinking is up to you." Perceived control has been recognized as an element of motivation for behavior change and maintenance (Miller, 1985).
- Clear **ADVICE** to change. Effective brief interventions contain explicit verbal or written advice to reduce or stop drinking. In fact, advice has been described as the essence of the brief intervention (Edwards et al., 1977).
- A **MENU** of alternative change options. Self-help resources have typically described an array of alternative strategies for reducing drinking. Effective brief interventions seldom advise a single approach, but rather a general goal or a range of options. Presumably, this broad approach increases the likelihood that an individual will find an approach appropriate to his or her situation.
- Therapeutic **EMPATHY** as a counseling style. Successful interventions have emphasized a warm, reflective, empathic, and understanding approach. No reports of effective brief counseling contain aggressive, authoritarian, or coercive elements.
- Enhancement of client **SELF-EFFICACY** or optimism. It is common in brief interventions to encourage self-efficacy for change, rather than emphasizing helplessness or powerlessness. Optimism regarding the possibility of change is often embedded in effective motivational counseling.
- Ongoing followup. In addition to these six elements, effective use of brief intervention often includes repeated followup visits. At least two studies have found that a reduction in drinking occurs after the first followup visit (Elvy et al., 1988; Heather et al., 1987). However, even without the benefit of repeated followup, studies consistently document the occurrence of marked behavior change immediately following the brief intervention.

Source: Adapted from Miller and Sanchez, 1993.

Exhibit 5-1 Ranges and Averages of Costs for AOD Screening

Ranges and Averages of Costs for AOD Screening

Function	Cost Range	Average
Laboratory test		
BAC	$18-92	$44

Urine toxicology	$21-62	$48
Staff		
R.N.	$13-30/hour	$18/hour
L.P.N.	$9-16/hour	$11/hour
Social Worker(M.S.W.)	$13-23/hour	$16/hour
Addictions Counselor (C.A.C)	$12-21/hour	$14/hour
Addictions physician	$100-200/hour	$ 100/hour

Ranges and averages were calculated from typical costs in AOD screening programs ranging from a rural program with less than 100 beds to urban facilities with more than 500 beds in representative geographic areas of the United States (Seattle, Wash.; St. Johnsbury, Vt.; New York, N.Y.; Apache Junction, Ariz.; and Memphis, Tenn.).

Blood alcohol concentration. Urine toxicology screening tests for sedative-hypnotics, opiates, cocaine, and cannabis.

Exhibit 6-1 Consent for the Release of Confidential Information

Consent for the Release of Confidential Information

I, _____,
authorize
(Name of patient)

_____
_____
(Name or general designation of program making disclosure)

to disclose to
_____
(Name of person or organization to which disclosure is to be made)

the following information:

_____

(Nature of the information, as limited as possible)

_____

_____

_____

_____

The purpose of the disclosure authorized herein is to:

_____

_____

_____

(Purpose of disclosure, as specific as possible)

_____

_____

I understand that my records are protected under the Federal regulations governing Confidentiality of Alcohol and Drug Abuse Patient Records, 42 C.F.R. Part 2, and cannot be disclosed without my written consent unless otherwise provided for in the regulations. I also understand that I may revoke this consent at any time except to the extent that action has been taken in reliance on it, and that in any event this consent expires automatically as follows:

_____

_____

(Specification of the date, event, or condition upon which this consent expires)

Dated: _____

_____

(Signature of participant)

_____ (Signature of parent, guardian, or authorized representative if required)

Exhibit 6-2 Prohibition on Redisclosing Information Concerning AOD Abuse Treatment Patients

Prohibition on Redisclosing Information
Concerning AOD Abuse Treatment Patients

This notice accompanies a disclosure of information concerning a client in alcohol/drug abuse treatment, made to you with the consent of such client. This information has been disclosed to you from records protected by Federal confidentiality rules (42 C.F.R. Part 2). The Federal rules prohibit you from making any further disclosure of this information unless further disclosure is expressly permitted by the written consent of the person to whom it pertains or as otherwise permitted by 42 C.F.R. Part 2. A general authorization for the release of medical or other information is NOT sufficient for this purpose. The Federal rules restrict any use of the information to criminally investigate or prosecute any alcohol or drug abuse patient.